



Clarke County Planning Commission

AGENDA – Special Meeting-Public Hearing

Wednesday, June 29, 2022 – 7:00PM

Berryville/Clarke County Government Center– Main Meeting Room

1. Approval of Agenda
2. 2022 Clarke County Comprehensive Plan
 - A. Staff Presentation
 - B. Public Hearing
 - C. Discussion
3. Adjourn



Clarke County Planning Department

101 Chalmers Court, Suite B

Berryville, Virginia 22611

(540) 955-5132

www.clarkecounty.gov

TO: Planning Commissioners

FROM: Brandon Stidham, Planning Director

RE: Special Meeting -- Public Hearing, 2022 Clarke County Comprehensive Plan

DATE: June 22, 2022

The Planning Commission's Public Hearing for the 2022 Clarke County Comprehensive Plan is scheduled for **Wednesday, June 29 at 7:00PM in the Government Center Main Meeting Room**. Enclosed you will find a clean hard copy of the draft document – please let us know if you would also like a hard copy of the redlined version and we will be happy to provide one. Electronic copies of both versions which contain the Commission's final requested edits were also emailed to you on June 3.

The Special Meeting will begin with a Staff presentation on the revision and then the floor will be opened for public comments. Commissioners previously discussed holding the public hearing but not taking any action on the revised Comprehensive Plan until the Business Meeting on Friday, July 1. With this in mind and once all public comments have been received, the Public Hearing may either be closed or may be continued to the July 1 Business Meeting at the Commission's discretion. Staff will be looking for the Commission to take action at the Business Meeting in the form of a formal recommendation to the Board of Supervisors or a deferral of action to a future Business Meeting in the event that the Commission needs more time to evaluate the draft.

Please let me know if you have questions or concerns in advance of the Public Hearing.



**2022 Clarke County
Comprehensive Plan**

**DRAFT (CLEAN)
For Planning Commission Public Hearing
June 29, 2022**

ACKNOWLEDGEMENTS

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CLARKE COUNTY PLANNING DEPARTMENT

Brandon Stidham, Planning Director
Jeremy Camp, Senior Planner/Zoning Administrator
Jeffrey Feaga, Preservation Planner/GIS Coordinator
Alison Teetor, Natural Resource Planner; CCEA Coordinator
Kristina Maddox, Office Manager/Zoning Officer

Clarke County Planning Department
101 Chalmers Court, Suite B
Berryville, VA 22611
540-955-5132

DATE OF PLANNING COMMISSION PUBLIC HEARING AND ADOPTION:

TO BE DETERMINED

DATE OF BOARD OF SUPERVISORS PUBLIC HEARING AND ADOPTION:

TO BE DETERMINED

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“A plan serves a public body much as a promise serves an individual. If we make a promise, others expect that we will honor it with our actions.”¹

FOREWORD

The Comprehensive Plan maps the future of land use in Clarke County. This long-range Plan captures the County’s vision, projects the necessary resources to make this vision happen, and provides strategies and recommendations to make the vision a successful reality. Such long-range planning, as set out in the Comprehensive Plan, anticipates future impacts of land use choices, and guides all present and future decisions regarding land use. The Code of Virginia requires every county to adopt a comprehensive plan and to review it at least once every five years to determine whether it needs to be updated.

The purpose of this plan is to guide land-use decisions, both public and private, as they relate to the specific goals of the County. The Plan is for the citizens of the County and, for this reason, considers many diverse interests. It cannot satisfy every citizen's particular interest but does provide a mechanism for the protection of the health, safety, and welfare of all County citizens. Most importantly, it provides an outline for future decisions on land use, natural resource protection, capital improvements, and economic growth while attempting to balance the community’s diverse interests.

Clarke County adopted its initial Comprehensive Plan on June 15, 1974. The Plan has been updated several times over the years, most recently in March 2014. Revised guidance and innovations were added with each update, but the following guiding principles have remained consistent:

- Manage residential and business growth in designated areas where it can be supported by public infrastructure in a fiscally-responsible manner.
- Allow low-density residential growth in rural areas consistent with the County’s sliding-scale zoning system.
- Ensure the prosperity of agriculture by protecting farmland from development pressures and supporting the right to farm.
- Develop and refine strategies and regulatory approaches to account for the challenges of developing in County’s karst terrain and potential for groundwater contamination.
- Recognize that the County’s mountain areas and the Shenandoah River have different ecosystems from the valley requiring different planning and regulatory approaches to preserve the natural beauty and ecology of these areas.
- Protect the County’s unique natural, historical, and cultural resources.
- Encourage compatible business activity to broaden the tax base, particularly businesses related to agriculture.

¹ Charles Hoch, Linda C. Dalton, and Frank So, eds.
The Practice of Local Government Planning, 3rd Edition
Washington, DC: International City/County Management Association, 2000, p. 32.

This Comprehensive Plan is a document first and foremost for the citizens of Clarke County. It is designed to protect and enhance the quality of life and sense of community valued by the people who have chosen to live and work here.

SUMMARY STATEMENT OF PURPOSE

Clarke County places tremendous value on its unique natural and historic resources and its agrarian economy. This rural character makes the County an exceptional place to live, work, and play. The Comprehensive Plan contains goals, objectives, and policy statements that are designed to ensure that these elements are maintained and protected. The Plan is drafted and organized to help citizens, business owners, appointed and elected officials, and other stakeholders clearly understand the path that the County has chosen in planning for its future.

This approach is summarized in the points below:

- The County's conservation easement program, land use taxation, and various planning and zoning tools, including sliding-scale zoning, shall continue to be used to protect rural areas, to aid in the vitality of our agricultural industries, and to preserve our natural and historic resources.
- Land use decision-making shall emphasize managed growth on a rural, small-town scale in designated areas where public infrastructure can be efficiently provided. These areas include the Towns of Berryville and Boyce as well as business intersections and unincorporated villages as described in this Plan and its implementing component plans.
- The County will focus its resources on infrastructure and economic development projects to serve the designated growth areas. With the exception of efforts to expand broadband internet service, residents and businesses in rural, unincorporated areas outside of designated growth areas should continue to expect rural levels of service.
- To ensure community vitality into the future, the County will explore and consider implementing new and innovative concepts, programs, projects, and regulations that provide diverse housing options, compatible economic development, and cost-effective public infrastructure in designated growth areas.
- The County shall strive to support concepts, programs, projects, and regulations that protect natural resources from significant degradation. Clarke County's fundamental goal is to protect our natural resources so that we may pass them on to future generations. We seek to accomplish this through efforts that manage surface water and groundwater, protect and restore stream and river corridors, and preserve the integrity of our natural environment.
- The County shall also strive to support concepts, programs, projects, and regulations that ensure economic sustainability in a fiscally-responsible manner consistent with its land-use philosophy. Public and private sector investments in business, housing, and

infrastructure should be economically viable, environmentally sound, and socially responsible to the community's objectives as set forth in this Plan. Achieving this goal requires active participation from the community, both to determine needs and to identify and implement innovative and appropriate solutions to address those needs.

INTRODUCTION

Comprehensive Plans Generally

The Comprehensive Plan is a long-range planning document that provides guidance for making land use and policy decisions. The Plan is for the County's citizens, business owners, and stakeholders and thus considers many diverse interests. Most important, it provides an outline for future land-use decisions that balance diverse interests and are based upon the goals, objectives, and policies of the County.

The Comprehensive Plan provides a vision for how a community should grow in the future. It is typically long-range and forward-looking, addressing a wide range of issues and questions relating to land use, community facilities, infrastructure, preservation, natural resource protection, community character, and economic development among other topics. It is important to understand that the Comprehensive Plan is an adopted guideline and not a law or regulatory tool. The Plan provides specific recommendations on land use tools that should be implemented, maintained, or enhanced to further the Plan's Goals, Objectives, and Policies. These tools can come in the form of regulations, such as changes to the County Code or Zoning and Subdivision Ordinances. They can also come in the form of more detailed plans such as the implementing component plans, or in programs and processes such as a Capital Improvement Planning program. Implementing the Plan's recommendations via these tools is the most critical element to ensure that the Plan's strategies are followed.

The County's Planning Commission is charged with preparing the plan and presenting it to the Board of Supervisors for consideration. The Code of Virginia requires local jurisdictions to adopt comprehensive plans in accordance with §15.2-2223:

The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

In the preparation of a comprehensive plan, the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities.

The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature, including any road improvement and any transportation improvement, shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.

Form and Function of the Clarke County Comprehensive Plan

The Comprehensive Plan consists of two components – a base Plan document and various implementing component plans. The base Plan document contains background information on the County’s history and characteristics, demographic and statistical information, and general goals, objectives and policies. The implementing component plans are separate specialized documents that provide detailed implementation strategies on specific topic areas outlined in the base Plan.

Code of Virginia §15.2-2230 requires planning commissions to review their comprehensive plans at least once every five years in order to determine whether it is advisable to make changes to the plan. This requirement applies to the County’s Comprehensive Plan and to each of the component plans as they are also considered to be part of the Comprehensive Plan. The current Comprehensive Plan was adopted in March 2014 and the Planning Commission adopted a resolution in January 2019 to initiate a review and update of the Plan. There is no requirement in the Code of Virginia regarding when a comprehensive plan review must be completed.

The base Plan document consists of three Chapters – General Information (Chapter I); Goals, Objectives, and Policies (Chapter II), and Implementing Components (Chapter III). Chapter I contains factual information about the County including its history and historic resources, its unique environmental resources and characteristics, and a summary of the County’s approach to growth management. Chapter I also contains statistical information of the County’s population and growth trends, housing patterns, and land use.

Chapter II contains the Plan’s guidance language, recommendations, and implementation strategies addressing key topic areas including:

- Agriculture
- Mountain resources
- Natural resources
- Historic resources
- Conservation easements
- Outdoor recreational resources
- Energy conservation and sustainability
- Village plans (Millwood, Pine Grove, White Post)
- Designated growth areas for development
- Economic development
- Public infrastructure, capital improvement planning, and fiscal responsibility
- Transportation
- Broadband internet access

Guidance language is described in a goals/objectives/policies format. Goals of the Comprehensive Plan describe the future of Clarke County in general terms and are the long-term expectations of this Plan.

Objectives describe the County's intended planning actions in the format of the key topic areas listed above. Policies are specific statements, directives, or strategies for each planning objective. They provide the rationales for land-use decisions and help to guide them.

Chapter III contains descriptions of the Comprehensive Plan's implementing component plans. As noted previously, implementing component plans are a series of specialized plans that address specific geographic areas or policy issues. Component plans are developed from various applicable goals, objectives, and strategies in the Comprehensive Plan. Each component plan contains its own goals, objectives and/or strategies (similar in structure to the Comprehensive Plan's Goals, Objectives, and Policies) which go into greater detail on the geographic area or policy issue than can be accomplished succinctly in the Comprehensive Plan. Some component plans are described as "action-oriented," meaning that the component plan's recommendations are primarily composed of specific action items such as tasks or projects to complete or milestones to be achieved.

Component plans are reviewed once every five years and the update processes are informed by the Comprehensive Plan's guidance and by guidelines enumerated in Chapter III. The Chapter also includes a section describing other plans and studies adopted or used by the County noting that while they are not part of the Comprehensive Plan, all such plans and studies must be developed and maintained in accordance with the Comprehensive Plan's guidance.

It should be noted that in conjunction with this Comprehensive Plan revision, the County's Economic Development Strategic Plan and Capital Improvement Plan are to be removed as implementing component plans. These plans require more frequent review and update than once every five years and will continue to be maintained in accordance with the Comprehensive Plan's guidance.

Brief summaries of the component plans are provided below.

Geographic Area Plans – Rural Areas

Agricultural Land Plan

The purpose of the Agricultural Land Plan is to provide tools and approaches for conserving farmland, and to establish and maintain policies and programs for the long-term prosperity of the County's agricultural industries. It is recommended to be used by property owners, elected and appointed officials, and other interested stakeholders to understand the County's approach to protecting and promoting agriculture. The Agricultural Land Plan's recommendations are applicable to all areas of the County where agricultural operations exist and are allowed by-right.

Mountain Land Plan

The Mountain Land Plan was developed to address the unique challenges and policy issues facing the County's mountain areas located east of the Shenandoah River. While this rural area

allows agriculture by-right, forestal resources predominate and present challenges in protecting scenic viewsheds, wildlife habitats, and ecosystems. The mountainous terrain also presents challenges of protecting surface water resources from erosion and sedimentation. This component plan attempts to address these issues while simultaneously balancing private property rights and the demand for access to the area’s natural and scenic resources.

Geographic Area Plans – Designated Areas for Growth

Berryville Area Plan

The Berryville Annexation Area, which includes lands jointly identified by the Town and County for future development to be served by public water and public sewer, is the County’s primary designated growth area. Because the Town of Berryville contains the highest concentration of available public facilities and infrastructure, it is the most appropriate place to direct future growth in an efficient and cost-effective manner. The Berryville Area Plan guides the physical growth of the Annexation Area and the orderly transition of properties from the County to the Town as development occurs. The primary purpose of this component plan is to facilitate development of a safe, vibrant, and distinctive small town environment while maintaining the unique historical character of the community.

Double Tollgate Area Plan

The Double Tollgate Area Plan is one of two Business Intersections Area Plans created under the Comprehensive Plan’s guidance. This component plan focuses on the future commercial development of the area immediately surrounding the Double Tollgate unincorporated area at the intersection of U.S. Routes 340 and 522 and Va. Route 277. Strategies are included to address County investment in public infrastructure over time to facilitate highway commercial-scale development at this intersection.

Waterloo Area Plan

The Waterloo Area Plan is the second of two Business Intersections Area Plans and focuses on development issues and challenges at the unincorporated Waterloo area at the intersection of U.S. Routes 340 and 50/17. The Waterloo area is partially served by public water and public sewer, and strategies are included to facilitate the future build-out of highway commercial-scale businesses.

Policy Issue Plans

Historic Resources Plan

The Historic Resources Plan is an action-oriented component plan focusing on the promotion and preservation of the County’s historic and cultural assets. Clarke County’s extensive historic resources play a large part both in attracting tourism and influencing land use decisions. The County encourages historic preservation through state and national programs and has conducted four area surveys to provide documentation of historic properties. This component plan contains a list of specific goals to be implemented through the County’s Historic Preservation Commission (HPC) to further the County’s historic preservation goals.

Recreation Plan

The Recreation Plan is the second of two new component plans developed as recommended by the 2013 Comprehensive Plan's guidance. This component plan contains specific recommended strategies to protect, promote, grow, and enhance the County's active and passive recreational resources. Its purpose is to address the community's recreational needs and outline steps to ensure the continued viability and enhancement of recreational resources for present and future generations.

Transportation Plan

Provision of a safe and efficient transportation network is critical to any community but it is also important to ensure that the community's transportation needs are compatible and coordinated with the land use philosophy. These needs are not limited to public roads but also extend to bicycle, pedestrian, and commuter networks. The Transportation Plan describes how the County's land use philosophy is coordinated with its transportation policies. The Transportation Plan also contains the County's current list of improvement projects along with planning level cost estimates and statistical information to support the need for each project.

Water Resources Plan

The Water Resources Plan was established to protect the County's groundwater and surface water resources and to raise attention to the unique challenges of preserving water quality and quantity in a County with significant Karst areas and mountainous terrain. The component plan contains specific goals and strategies to support regulatory protections, to guide land use decision-making, and to encourage ongoing initiatives to further these goals.

Process for Amending the Comprehensive Plan

While not recommended, the Planning Commission and Board of Supervisors may consider a proposal to amend the Comprehensive Plan or any of the Implementing Components of the Comprehensive Plan outside of the scope of the Plan's five-year review cycle in accordance with Code of Virginia §15.2-2229 and other relevant sections.

A Comprehensive Plan amendment shall demonstrate the following elements: a) preserving open space, farmland, natural beauty, and critical environmental areas, and/or b) improving the quality of life and services and directing development toward designated growth areas.

A Plan Amendment must also meet one of the following criteria.

1. The goals, objectives, or policies of the Comprehensive Plan or an implementing element of the Comprehensive Plan would be more effectively met or implemented, particularly by a concept of land development that was not foreseen by the Plan, if the Plan Amendment were approved.
2. The area surrounding the property in question has changed substantially since the review of the Comprehensive Plan or the applicable element of the Comprehensive Plan.
3. The Virginia General Assembly has adopted new requirements affecting comprehensive plans that must be implemented prior to the County's next five year review schedule.

The importance of the three criteria noted above are critical to ensure that such an amendment addresses a genuine change in conditions of the property, the County, or outside influences affecting the County, or to address a gap in the guidance or State regulatory compliance provided by the Plan and its Component Plans. Piecemeal plan amendments should not be considered solely to address a land use change or other request that is in conflict with the Plan's recommendations.

Citizen Participation in the Planning Process

Each member of the Board of Supervisors is a citizen that is elected to office by the County's residents, and each member of the Planning Commission is a citizen that is appointed to serve by the Board of Supervisors. Together with County employees in the Department of Planning, County Administration, and other key departments, these entities are responsible for managing the County's planning processes.

The Code of Virginia requires the Planning Commission and Board of Supervisors to hold duly advertised public hearings in order to adopt changes to the Comprehensive Plan and implementing component plans. While this minimum requirement ensures that residents, business owners, and other interested stakeholders have at least two opportunities to provide formal comment on proposed changes, additional public input using both formal and informal methods is important in order to produce a well-rounded planning product as well as to facilitate understanding and to achieve buy-in.

Methods to inform and educate the public and to encourage their participation in planning processes include but are not limited to:

1. Schedule informal public information sessions prior to conducting required public hearings which allow participants to learn about plan revisions and provide questions and comments to elected and appointed officials and Staff on a one-on-one basis. Sessions can be scheduled in multiple locations around the County as a means of facilitating attendance and participation.
2. Hold workshops or planning charrettes for major revisions or development of new plans that allow citizens and stakeholders to participate in and interact directly with the planning process at its earliest stages.
3. Ensure that information pertaining to the Plan and the planning process is available to citizens in an understandable form, which may include internet postings, newsletters, mailings, informational brochures, and announcements in newspapers and on radio to stimulate citizen involvement.
4. Encourage educational institutions, agencies, clubs, and special interest groups to review and comment on the Comprehensive Plan and implementing components.
5. Following plan adoption, ensure uniform interpretation, administration, enforcement procedures, and staffing levels for the implementing plans, policies, and ordinances of the Comprehensive Plan.

Scope of the Current Plan Revision

As noted above, the Planning Commission adopted a resolution in January 2019 to initiate a review of the Clarke County 2013 Comprehensive Plan. This resolution included the following key issues to be addressed during the revision process in addition to any other issues identified by the Commission:

1. Evaluate the current Goals, Objectives, and Strategies for relevance and consistency with recent implementing component plan updates. Consider adding or revising language to address any new County priorities such as broadband internet access for residents and businesses.
2. Update demographics and statistical information that have changed since 2013 and for which new data is currently available.
3. Determine whether to incorporate data or other information from the Cost of Community Services Study.²
4. Update implementing component plan descriptions in Chapter III to reflect recent updates of these Plans.
5. Evaluate whether to conduct a comprehensive review and update of the Mountain Land Plan and, if so, develop objectives and strategies that will inform the update process.
6. Determine whether to retain reference to the Capital Improvement Plan as an implementing component plan and make changes to the applicable objectives and strategies as necessary.

In addition to addressing these and other issues, demographic information has been updated in Chapter I using a variety of primary sources including the 2020 US Census, 2019 American Community Survey, University of Virginia's Weldon-Cooper Center, Virginia Employment Commission (VEC), West Virginia University's Bureau of Business and Economic Research, US Bureau of Labor Statistics, and Clarke County Planning Department records.

Work on the Comprehensive Plan revision was assigned to the Commission's Comprehensive Plan Committee. Because of delays due to work on other planning projects and the COVID pandemic, the Committee and Staff were not able to begin work until June 2020. A final draft was completed and presented to the full Commission for final review on May 3, 2022.

² The Cost of Community Services Study (developed in 2018 by the University of Virginia's Weldon-Cooper Center) examines the cost to the County of providing public infrastructure and services to the various land-uses in the County.

CHAPTER I

General Information

A. COUNTY PROFILE

Clarke County was formed in 1836 from Frederick County, Virginia. It remains primarily a rural, agricultural county, continuing a tradition begun in colonial times. The County is bounded on the east by Loudoun County at the crest of the Blue Ridge Mountains. To the west, the County borders Frederick County, Virginia and Opequon Creek. To the south, the County borders Warren County and Fauquier County. To the north, the County borders Jefferson County, West Virginia.

Clarke County has a population of 14,783 (2020 U.S. Census). Nearly three-fourths of the 178 square miles (114,103 acres) of the County is west of the Shenandoah River. Within the western portion of Clarke County, the Town of Berryville consists of 1,449 acres, and the Town of Boyce consists of 230 acres. The remaining 112,425 acres are unincorporated. The County’s total land area increased by a negligible amount as a result of a 2020 boundary line adjustment agreement with Warren County and improved accuracy in mapping the County’s boundaries in various locations.¹

Located 10 miles east of Winchester and Interstate 81, Berryville, the county seat, has a population of 4,574 (2020 DEC Redistricting Data, US Census). Berryville is situated at the intersection of U.S. Route 340 (Lord Fairfax Highway) and Virginia Route 7 (Harry Byrd Highway). Virginia Route 7 serves as the main east-west corridor for the northern half of the County. U.S. Route 340 serves as the County’s main north-south corridor.

The Town of Boyce has a population of 749 (2020 DEC Redistricting Data, US Census). It is located along U.S. Route 340, approximately 1 1/2 miles north of U.S. Route 50/17 (John Mosby Highway). U.S. Route 50 is the main east-west corridor for the southern half of the County.

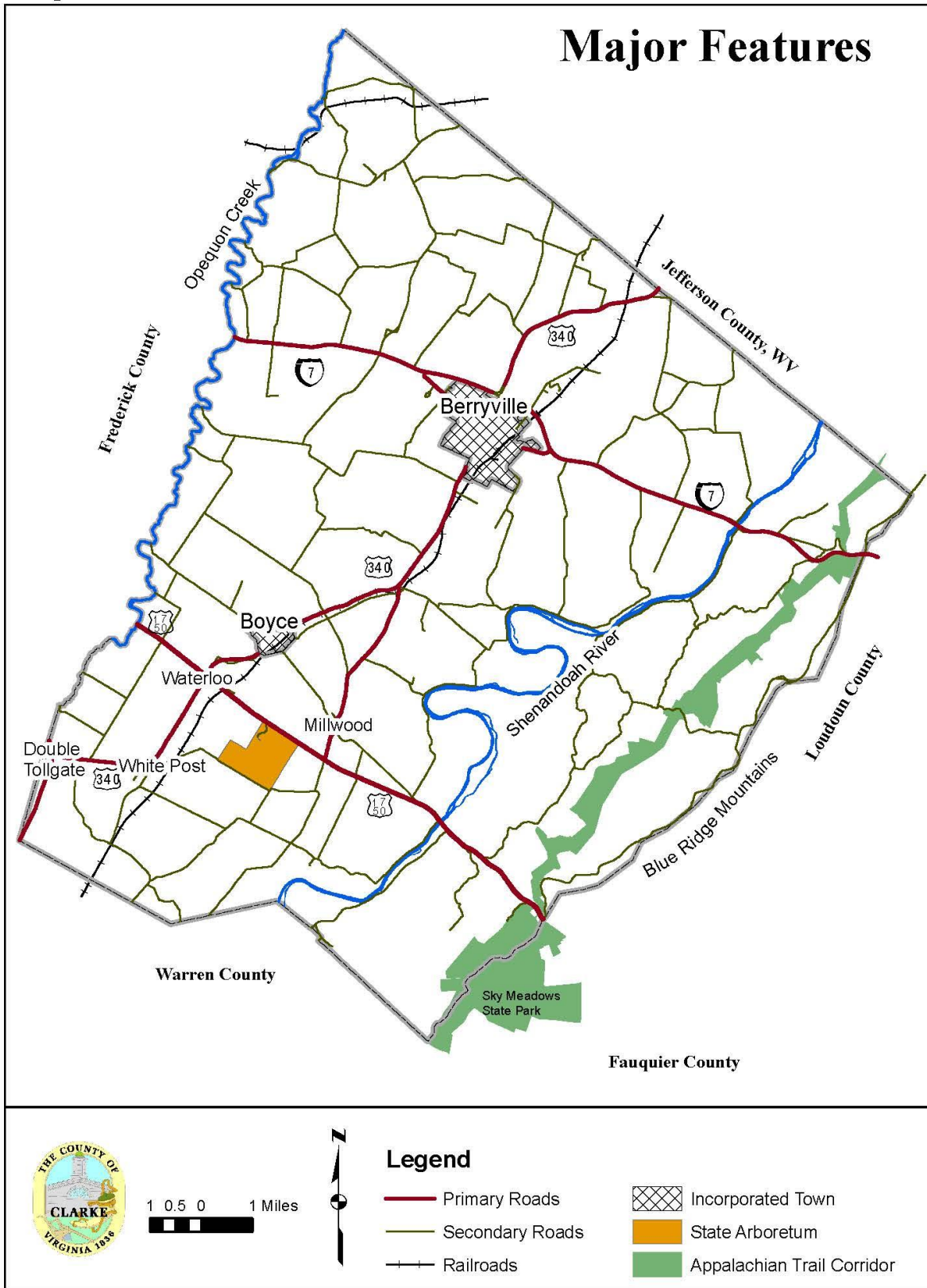
Clarke County is located within the Washington metropolitan area. Washington Dulles International Airport is located only 40 miles to the east. It provides access to both passenger and freight air service. Washington, D.C. is positioned 60 miles to the southeast of Clarke County.

¹ The 2014 Comprehensive Plan listed the County area as 174 square miles (111, 360 acres). This appears to be due to the area of the Towns of Berryville and Boyce and the area of the Shenandoah River being excluded from the total area.

Map 1, Regional Vicinity



Map 2



B. ENVIRONMENTAL RESOURCES

1. Geology

Clarke County is located at the junction of two distinct physiographic regions¹ (See Map 3). The western portion of the County is located within the Shenandoah Valley region, also referred to as the Valley and Ridge, or simply the Valley region. Bedrock within this region was formed between 443-542 million years ago. The eastern portion of the County is located within the Blue Ridge region. Bedrock within this mountainous region was formed between 600-900 million years ago.

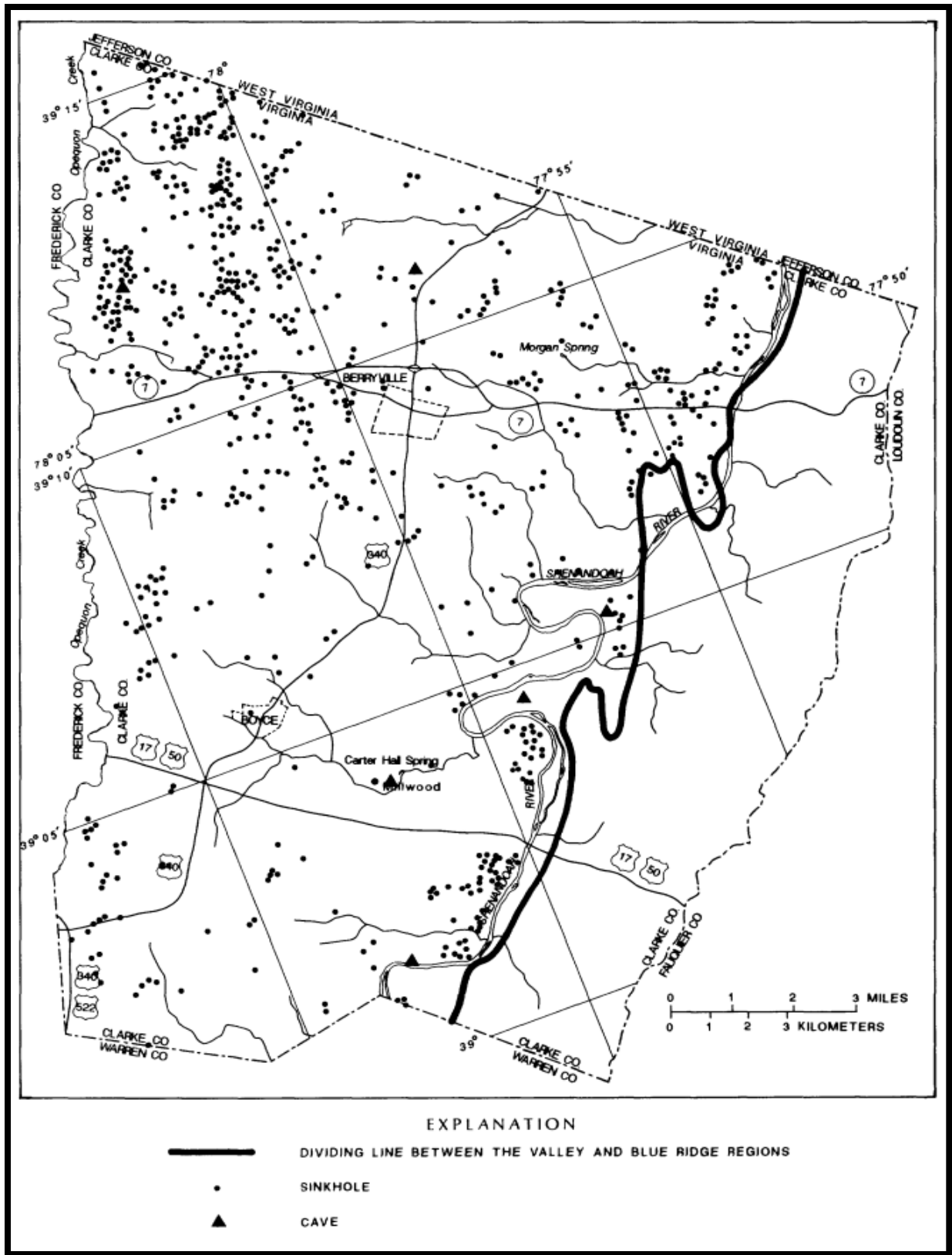
The Shenandoah Valley physiographic region is generally located west of the Shenandoah River. Bedrock in this region consists of carbonates, including limestone, gypsum, dolomite and calcareous shales. These carbonates are relatively soluble in comparison to other rocks. Over millions of years, the bedrock in the Shenandoah Valley has eroded to create a karst landscape, including underground drainage systems, sinkholes and caves.

East of the Shenandoah River is within the Blue Ridge physiographic region. The Blue Ridge region includes metamorphic rocks, including sandstone, phyllite, quartzite, slate and shale. Metamorphic rock is generally hard and dense, with a low solubility. As a result, erosion is a slower process than in the surrounding bedrocks, creating a terrain that is characterized by steep slopes and higher elevation.

A more detailed discussion of the County's geology is included in the Geological Profile Appendix.

¹ Physiographic regions, also referred to as physiographic provinces, are large areas that share similar relief and landforms shaped by common geomorphic processes and geological history.

Map 3 –County Physiographic Regions



Source: Ground-Water Hydrology and Quality in the Valley and Ridge and Blue Ridge Physiographic Provinces of Clarke County, Virginia, U.S. Geological Survey, Water-Resources Investigations Report 90-4134 (1990), Page 14

2. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types. This is due to the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient metamorphic and sedimentary rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

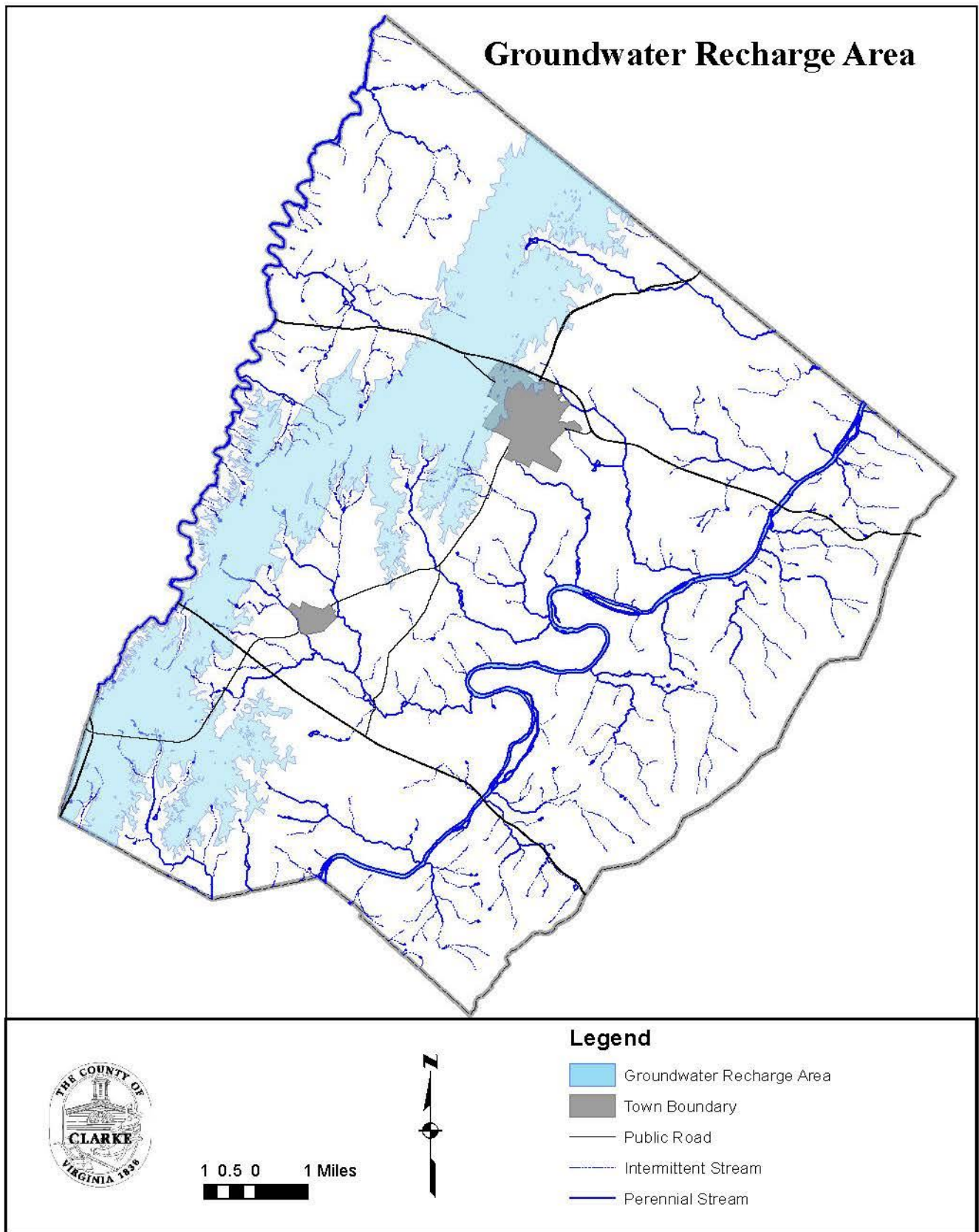
Aquifer recharge is much more rapid in the Eastern Lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and dolomite rock is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.

The drought of 1999-2002, followed by a period of rapid development, drew greater attention to the quantity, quality and sustainability of groundwater resources in Clarke County. Between 2002 and 2008 the U.S. Geological Survey, in cooperation with Clarke County, conducted a study that described the hydrogeology and groundwater availability in Clarke County. The study highlighted the susceptibility of the karst portions of the county to weather cycles, particularly the amount and timing of rain and the occurrence of winter precipitation including snow. Protecting recharge throughout the valley region is important for maintaining adequate levels in water wells in addition to sustaining surface flow in streams, as groundwater is the source for most of the surface water. All of the karst areas of the county are important for groundwater supply and are susceptible to groundwater contamination due to the presence of sinkholes and cracks and channels in the rock. A limestone ridge area, forming the divide between the Opequon Creek and Shenandoah River watersheds, was emphasized for groundwater protection due to the lack of surface runoff that occurs in the area and its potential for increased recharge. This limestone ridge is at a higher elevation than its surrounds and experiences wider variation in groundwater levels, leading to more severe response to drought and wet

weather. The findings of the 2002-2008 study culminated in Scientific Investigations Report 2010-5112 published by USGS in 2010.

In 2018, Clarke County adopted the Water Resource Plan, and implementing component of the Comprehensive Plan. The major takeaway of the Water Resources plan includes the establishment of sustainable policies that protect the quality and quantity of groundwater resources in Clarke County, particularly by protecting areas needed for groundwater recharge and identifying ways to prevent water contamination.

Map 4



3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphic and the harder types of sedimentary rocks of the Blue Ridge region have been highly resistant to erosion, but the softer sedimentary rocks have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level in the Blue Ridge region to 360 feet above sea level at the Shenandoah River. The average elevation in Clarke County is 659 feet above sea level.

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon Creek runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon Creek watershed covers 35 square miles (or 20%) of Clarke County.

In 1960, Clarke County first adopted floodplain regulations for land uses within areas prone to flooding. Regulation of floodplain areas ensures that residents are able to obtain flood insurance. The regulations also protect the public's health and safety by establishing standards that minimize loss of life, injuries and property damage during flood events.

Areas designated by the Federal Emergency Management Agency (FEMA) as special flood hazard areas are included within the regulated floodplain district. This special flood hazard area includes the area of one percent (1%) chance of flooding each year, more commonly referred to as the 100-year floodplain. Within the 100-year floodplain is the floodway. The floodway is the portion of the 100-year floodplain that is necessary to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. For the purpose of protecting water sources, Clarke County has also established a 10-year floodplain where onsite sewage systems are prohibited.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. A map of the soil types, detailed descriptions, and percentages of County land area covered by each type are included in the Geological Profile Appendix.

C. HISTORY AND HISTORIC RESOURCES

Native Americans inhabited the area of Clarke County for centuries before the first European settlers arrived. Several prehistoric archeological sites have been discovered on the banks of the Shenandoah River in Clarke County, and records indicate that there are potentially thousands of such sites throughout the County. A significant Native American pathway traversed through the region of the Shenandoah Valley, used for both trade and warfare. This route was named the Warrior's Path and was later used by early settlers from Europe.

The names of the Shenandoah River and Opequon Creek originated from the Native American languages. One theory is that the word "Shenandoah" means "Spruce Forest." A great spruce tree forest used to exist along the waters of the river. However, a more popular theory is that the word means "Daughter of the Stars." This was allegedly the name given to the river by Native Americans because you could see the stars in the calm blue waters.

The territory that would become Clarke County was first demarcated under the Treaty of Albany in 1722. This was a treaty signed in Albany, New York by leaders of the Five Nations of Iroquois, Province of New York, Colony of Virginia, and Province of Pennsylvania. The Five Nations of Iroquois laid claim to the territory, but agreed to use their influence to protect the British colonies from attacks by hostile Native American tribes.

Following the Treaty of Albany, the first settlements began to arrive to the area that is now Clarke County. These settlers primarily consisted of people from Germany, Ireland, Scotland, Denmark and England. Africans also arrived during this period due to the system of slavery that existed during this time period.

Thomas Fairfax, sixth Baron Fairfax of Cameron (1693-1781), was the proprietor of the lands of Clarke County, who inherited it from his mother, the daughter of Lord Culpeper. Lord Fairfax granted some of the lands of Clarke County to himself, including what would become the Manor of Greenway Court (his home after 1752) and the Manor of Leeds. Several buildings and structures of the Greenway Court complex still remain, including the 1761 Land Office. The village of White Post, near Greenway Court, grew up around the prominent post directing new settlers to Greenway Court. The first post was erected in the early 1750s by George Washington, then a surveyor for Lord Fairfax.

Lord Fairfax, whose territory extended from the Rappahannock River to the Potomac River, also granted lands to Robert "King" Carter, a wealthy and prominent landholder in Virginia. Carter's land in Clarke County was mostly unavailable for settlement until the mid-1700s when it was divided into tenancies and rented out to farmers. With the end of the Revolutionary War in 1783 and the commercial decline of tobacco, settlers from the Tidewater, most of whom were Carter's descendants, began to move to Carter's land in greater numbers. The Tidewater families imported their lifestyle, their appreciation of stylish architecture, their wealth, and the slave system, all of which are reflected in the structures they built. One of the Tidewater settlers was "King" Carter's great-grandson, Nathaniel Burwell, builder of Carter Hall, the leading plantation in the County. The village of Millwood, near Carter Hall, developed around a prominent commercial mill completed in 1786. It was operated by Burwell and Revolutionary War hero, General Daniel Morgan. The establishment of this and several other mills during the late eighteenth and early nineteenth centuries reflects the transition from tobacco planting to wheat farming by Tidewater families.

African slaves brought from the Tidewater made the settlement and production of large plantations possible in Clarke County. In the 1840 Census, over 50% of the County's population was of African descent. According to the 2019 American Community Survey, estimates indicate that the percentage of African-Americans in Clarke County is 4.7%.

Pioneers migrating south from Pennsylvania, New York, New Jersey, and Maryland in search of rich farmlands formed the broad pattern of European settlement in the northern Shenandoah Valley. These people were, for the most part, Scots-Irish, English Quakers, and Germans. They settled in the portion of the northern Shenandoah Valley that today is known as Frederick County and, to a lesser extent, in what is now Clarke.

Clarke County was founded on March 8, 1836 and was named after the Revolutionary War hero George Rogers Clark but from its inception the name was misspelled with an extraneous "e." The County was created from the eastern portion of Frederick County. The socio-economic differences between what is now Clarke and the rest of Frederick County and the considerable distance to the county seat in Winchester contributed to the separation of Clarke County from Frederick. Prior to the formation of Frederick County in 1738, the lands of Clarke County were located within the boundaries of Orange County.

The Civil War brought an abrupt end to any new construction and growth in Clarke County. The Battle of Cool Spring and several skirmishes took place in the County, and troops were constantly passing through the area. Numerous buildings, including houses, barns, and mills, were destroyed during the period. The Shenandoah Valley provided Confederate troops with food and grain and became known as the "breadbasket of the Confederacy."

Reconstruction came slowly after the Civil War, but was stimulated by transportation improvements in the late nineteenth century and throughout the twentieth century. This included the establishment of the Shenandoah Valley Railroad (now Norfolk Southern Railroad) in the 1880s. Later improvements to major highways, such as US Route 50, Virginia Route 7, and US Route 340 provided even greater connectivity to the larger markets in the region, including the booming area surrounding the nation's capital.

Clarke County was a highly productive agricultural county throughout the nineteenth century. According to 1860 census data, although Clarke was the smallest county in the Shenandoah Valley, it had the largest percentage of land in farms and ranked second in wheat production in the Valley. Wheat was the largest cash crop in the County until the early 20th century, when it was replaced by apple production.

Clarke County's abundance of bluegrass has long made it a desirable location for horse breeding. The Tidewater families brought their thoroughbreds with them and began a tradition of horse breeding that has continued to the present. By the beginning of the 21st century, apple production declined, while beef and dairy cattle and horses were the mainstays of the local agricultural economy.

Berryville, incorporated in 1798, is the largest town in the County. It was first settled in 1775 and was originally known as Battletown, due to its rowdy taverns. Its location at the intersection of major roads leading to Alexandria, Baltimore, and Winchester made it the commercial center of the County and insured its selection as the seat of County government. Boyce, the second town of the County,

was incorporated in 1910. It was originally settled in 1880 at the crossing of the Millwood-Winchester Turnpike (now Route 723) and the newly built Shenandoah Valley Railroad (now Norfolk Southern).

Today, Clarke County remains primarily rural, and agriculture is still one of its main sources of income. Berryville is still the commercial, governmental, and manufacturing center of the County. In the late 20th century, people increasingly moved to the County to construct new homes in rural settings, as well as to restore older residences. In order to preserve the agricultural economy of the County and its rural character, the County enacted innovative land-use regulations in 1980. These regulations limited residential growth in rural areas and focused new housing in the Berryville area.

The large number and diversity of historic structures and buildings complement Clarke County's rural and agricultural environment. A Countywide archeological assessment was completed in 1993 to survey the Native American presence. Possible sites of several palisade villages were located, as well as thousands of individual dwelling sites. All pre-World War II structures were also documented with reconnaissance-level surveys. A total of 962 historic properties were identified (each of which may include several structures), dating from the early 1700s through 1941 in the rural portion of the County. From approximately the same period, 236 historic structures and buildings were identified in Berryville, 100 in Boyce, 58 in Millwood, and 28 in White Post.

As a follow-up to the general identification of historic properties, approximately half of Clarke County has been placed on the Virginia Landmarks Register and the National Register of Historic Places. This includes 11 historic districts and 27 individually listed buildings. Historic Districts in Clarke County that are on the Virginia Landmarks Register and National Register of Historic Place include the following:

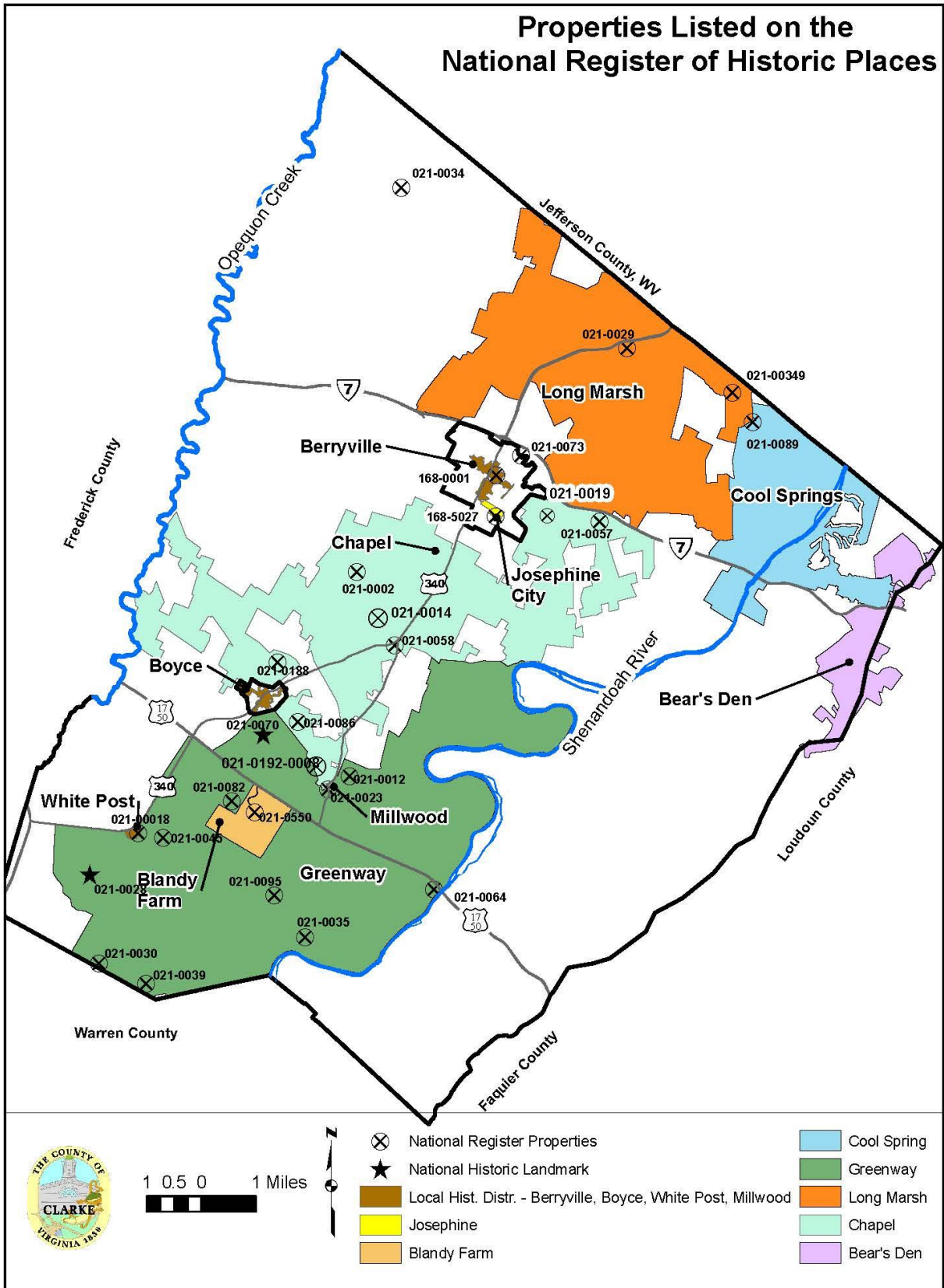
- Bear's Den Rural Historic District (1,855 acres)
- Berryville Historic District (150 acres)
- Blandy Experimental Farm Historic District (712 acres)
- Boyce Historic District (102 acres)
- Chapel Rural Historic District (11,496 acres)
- Cool Spring Battlefield (4,064 acres)
- Greenway Rural Historic District (19,107 acres)
- Josephine City Historic District (40 acres)
- Long Marsh Rural Historic District (10,293 acres)
- Millwood Commercial Historic District (4.32 acres)
- White Post Historic District (30 acres)
- **Total Area – 47,853.32 acres**

Individual Buildings in Clarke County that are on the Virginia Landmarks Register and National Register of Historic Places include the following:

- Annefield
- Bethel Memorial Church
- Burwell-Morgan Mill
- Carter Hall
- Chapel Hill
- Old Clarke County Courthouse
- Cleridge
- Clermont
- Fairfield
- Farnley
- Glendale Farm
- Guilford
- Huntingdon
- Josephine City School
- Locke's Mill
- Long Branch
- Lucky Hit
- Meadea
- Millwood Colored School
- Mt. Bleak
- Norwood
- River House
- Saratoga
- Scaleby
- Smithfield Farm
- Soldier's Rest
- Stone's Chapel

Greenway Court (the 1750 home of Lord Fairfax) and Saratoga (the 1780 home of Daniel Morgan) have been designated National Historic Landmarks, the highest level of national recognition for an historic property. The County is also part of the John Singleton Mosby Heritage Area, the first heritage area designated in Virginia. This Heritage Area approximates "Mosby's Confederacy," to encompass parts of six counties, of which Clarke is the only county included in its entirety.

Map 5



D. APPROACH TO GROWTH MANAGEMENT

Clarke County's heritage and natural characteristics, combined with its recreational, cultural, and educational opportunities, make it an attractive place to live, work, and visit. The Shenandoah River runs south to north through the County, dividing the primarily forested and mountainous land in the east from the rolling agricultural lands in the west. Used as a major transportation route during the nineteenth and early twentieth centuries, the Shenandoah has been designated a State Scenic River by the Virginia General Assembly and is one of the state's outstanding rivers. The Appalachian National Scenic Trail runs the length of the County, providing 10 miles of hiking along the Blue Ridge Mountains. The State Arboretum of Virginia is located at the University of Virginia's Blandy Experimental Farm near Boyce. The County's Parks and Recreation Department offers a wide variety of recreational opportunities. Nearly 24% of the County (approximately 27,111 acres) is under permanent conservation easement, permanently protecting farmland, forest, natural and historic resources, and open space by limiting development. Historic museums and public buildings include Clermont Farm (1770), the Burwell-Morgan Mill (1782), the Clarke County Historical Association Museum, the Clarke County District Courthouse (1839), the Long Branch House and Farm Museum (1809), and the Josephine School Community Museum (1881). More than 30% of Clarke County is within ten National Register historic districts, and the entire County is in the John Singleton Mosby Heritage Area. Self-guided driving tours of these historic areas are available

For the past several decades, the County has been faced with the challenge of protecting its most valuable characteristics from increased pressures for growth and development. These pressures are primarily the result of urban sprawl coming from the Washington metropolitan area, particularly the counties in northern Virginia. To the east, Loudoun County increased in population from 37,150 in 1970 to 420,959 in 2020, the fastest growth rate in Virginia. Loudoun County was the fastest growing county in the nation in the first three years of the millennium. Since 2010, Loudoun County ranks 20th in growth among all counties in the United States with a population of 100,000 or more. Although slowed somewhat by recession from 2007-2009, Frederick County and the City of Winchester to the west have grown from 48,322 in 1970 to 119,539 in 2020. Potential residents continue to seek a high quality rural lifestyle away from the density and traffic of the urban core. Clarke County lies directly in the path of this growth due to its proximity to major commuter routes (US 50/17 and VA Route 7) that convey traffic to and from the major employment centers to the east.

With careful consideration and foresight, Clarke County established sliding-scale zoning in the 1980s. Sliding scale zoning regulations limit the number of new residential lots that can be subdivided from parcels in the Agricultural-OpenSpace-Conservation (AOC) and Forestal-Open Space-Conservation (FOC) Zoning Districts. This improves the effectiveness of other residential growth management policies and programs, such as regulations that control the maximum and minimum size of parcels, and the designation of residential growth areas in the Towns of Berryville and Boyce. The success of the County's conservation easement program is largely the result of sliding scale zoning. Approximately 24% of Clarke County's land area is in a permanent conservation easement. These policies and programs work in unison with sliding scale zoning to preserve agriculture and the rural character of the community. Furthermore, managing growth in designated areas allows public services to be provided with increased efficiency.

The chart below was adopted with sliding-scale zoning in 1980 along with the corresponding DUR assignments to parcels in the County at the time. The sliding-scale chart has remained unchanged since its adoption.

TABLE 1A – Sliding Scale Zoning/Dwelling Right Distribution

Size of Tract Permitted	Dwelling Unit Rights Assigned
0-14.99 acres	1
15-39.99 acres	2
40-79.99 acres	3
80-129.99 acres	4
130-179.99 acres	5
180-229.99 acres	6
230-279.99 acres	7
280-329.99 acres	8
330-399.99 acres	9
400-499.99 acres	10
500-599.99 acres	11
600-729.99 acres	12
730-859.99 acres	13
860-1029.99 acres	14
1030 acres or more	15

Sliding-scale zoning also provides for an accurate accounting of the residential build-out potential for the County. This accounting is an important tool to accurately project the County’s growth potential. It also provides information that assists the County in making decisions on new development proposals. Below are two tables that show the distribution of DURs to date according to zoning district and by election district. A map of the election districts, also referred to as voting districts, is shown on the following page.

TABLE 1B – Dwelling Unit Rights (DURs) Used and Remaining By Zoning District

Zoning District	DURs Allocated	DURs Remaining	% Remaining
AOC	4,465	2,286	51.2%
FOC	2,169	1,061	48.9%
TOTAL	6,634 ¹	3,347	50.5%

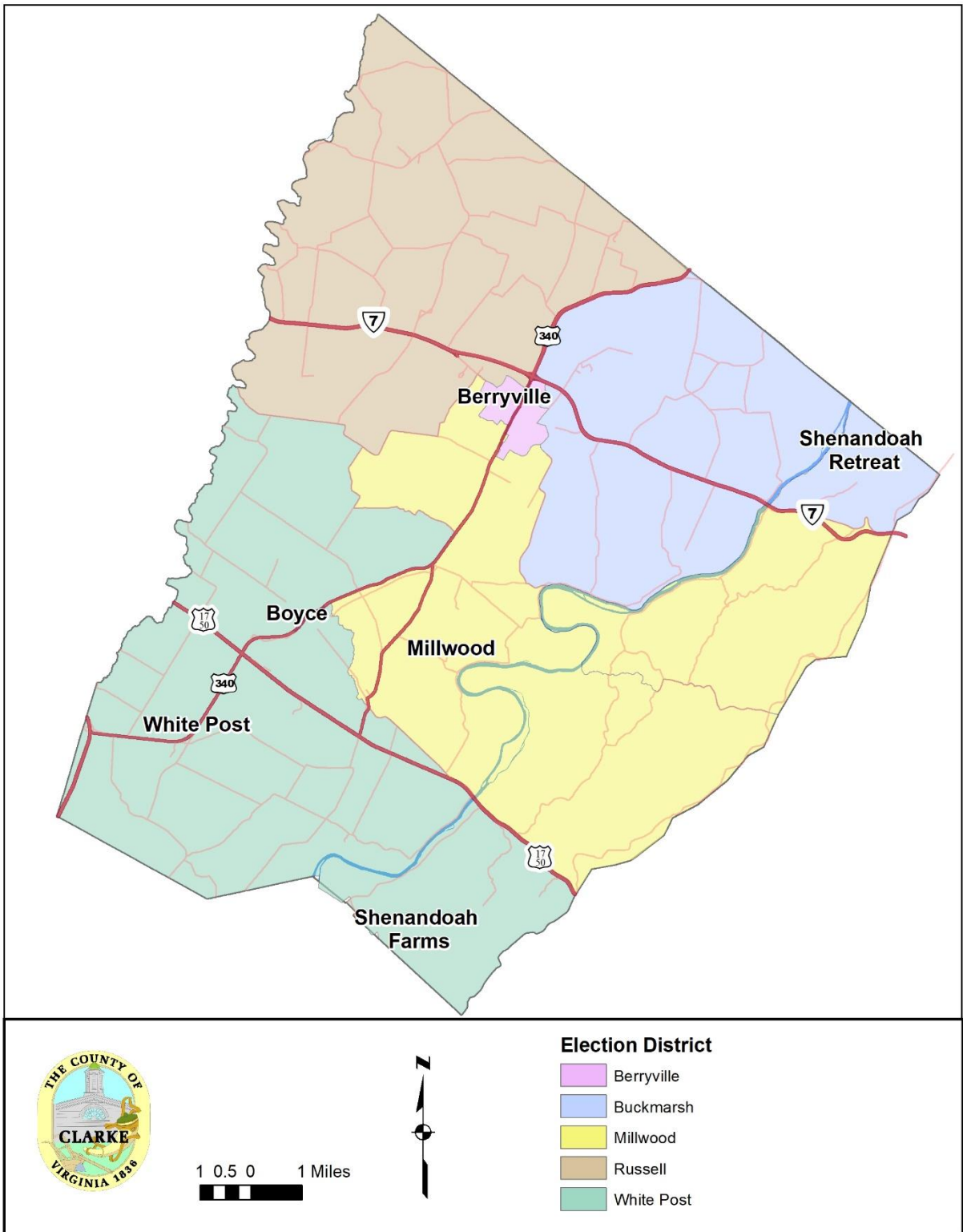
TABLE 1C – Dwelling Unit Rights (DURs) Used and Remaining by Election District

Election District	DURs Allocated¹	DURs Remaining	% Remaining
Berryville²	0	0	0
Buckmarsh	1,076	543	50.5%
Millwood	1,996	1,000	50.1%
Russell	1,586	627	39.5%
White Post	1,976	1,177	59.6%
TOTAL	6,634	3,347	50.5

¹ DURs were recalculated using available GIS data in 2022. The improved accuracy resulted in minor adjustments to the DURs allocated and remaining.

² DURs are not present in the Berryville Election District because there is no land zoned AOC or FOC within its boundaries.

Map 6 - County Election Districts



Another important growth management tool is the imposition of maximum lot size and average lot size requirements in the AOC Zoning District. Over 90% of the County's land area west of the Shenandoah River is currently zoned AOC. Application of these requirements has resulted in DURs being redistributed via subdivision over small, rural-scale residential lots and large residual tracts. The maximum lot size in the AOC District is 4 acres and the average lot size (excluding the residual parcel) is 3 acres. As an example, a 100 acre parcel with 4 assigned DURs would not be permitted to be divided into four 25-acre tracts. The lot size requirements would instead produce a subdivision of three 3-acre lots and one residual 91 acre lot each with one assigned DUR per lot. This design approach helps to facilitate land conservation and continued use of farmland.

The FOC Zoning District, located between the Shenandoah River and the crest of the Blue Ridge, utilizes open space set aside requirements in lieu of maximum lot size requirements to manage growth. All subdivision of FOC land containing 40 or more acres must reserve a percentage of land in an open space residual parcel with one dwelling or one DUR. This allows for greater flexibility in lot design in comparison to the AOC District. The added flexibility is intentional to ensure that lots can be designed within the more extreme topographical conditions in a way that best protects the environment.

A relatively newer tool used to encourage the preservation of land is the County's conservation easement program. A conservation easement is a voluntary agreement between a landowner and an easement holder (either a private organization, a state entity such as the Virginia Outdoors Foundation, or Clarke County) to place a property or group of properties in a permanent conservation state with very limited options to develop in the future. In many cases, limitations on development comes in the form of reducing available DURs by allowing only one primary dwelling and an accessory dwelling as a condition of the easement.

State agencies and land trusts for many years have worked with County property owners to voluntarily place lands in conservation easement. In 2002, the County became an active participant in easement acquisition by establishing an easement program and creating a Conservation Easement Authority to oversee the program. Easements are accepted by the County on a voluntary basis but the County, through the Easement Authority, also purchases certain easements that have conservation value such as prime soils for agriculture, historic or natural resources, or that would result in the retirement of DURs. Property owners that choose to place their land in easement and forego certain development potential gain certain tax benefits in addition to Federal, State, local, or private funds if they qualify for easement purchase.

The following tables outline historic data on the conservation easement activity in Clarke County.

TABLE 2A – Conservation Easements Added/Dwelling Units Retired, 1974-2021

YEAR	VOF, OTHERS (acres)	COUNTY (acres)	DURs RETIRED*
1974	72	0	n/a
1975	4	0	n/a
1976	195	0	n/a
1977	119	0	n/a
1978	667	0	n/a
1979	1,037	0	n/a
1980	166	0	n/a
1981	0	0	n/a
1982	100	0	n/a
1983	0	0	n/a
1984	0	0	n/a
1985	0	0	n/a
1986	0	0	n/a
1987	0	0	n/a
1988	807	0	n/a
1989	1,540	0	n/a
1990	2,503	0	n/a
1991	846	0	n/a
1992	64	0	n/a
1993	328	0	n/a
1994	2	0	n/a
1995	95	0	n/a
1996	42	0	n/a
1997	336	0	n/a
1998	485	0	n/a
1999	951	0	n/a

YEAR	VOF, OTHERS (acres)	COUNTY (acres)	DURs RETIRED*
2000	1,453	0	n/a
2001	764	0	n/a
2002	1,180	0	n/a
2003	133	145	3
2004	957	35	1
2005	943	312.6	5
2006	425	579	18
2007	285	1,205	44
2008	0	250	12
2009	230	484	13
2010	0	473	21
2011	210	591	18
2012	0	709	26
2013	1,120	612	15
2014	65	404	15
2015	17	33	3
2016	0	1,262	30
2017	0	308	14
2018	197	635	16
2019	211	209	7
2020	0	23	2
2021	61	244	13

TOTAL 18,610 8,514 276

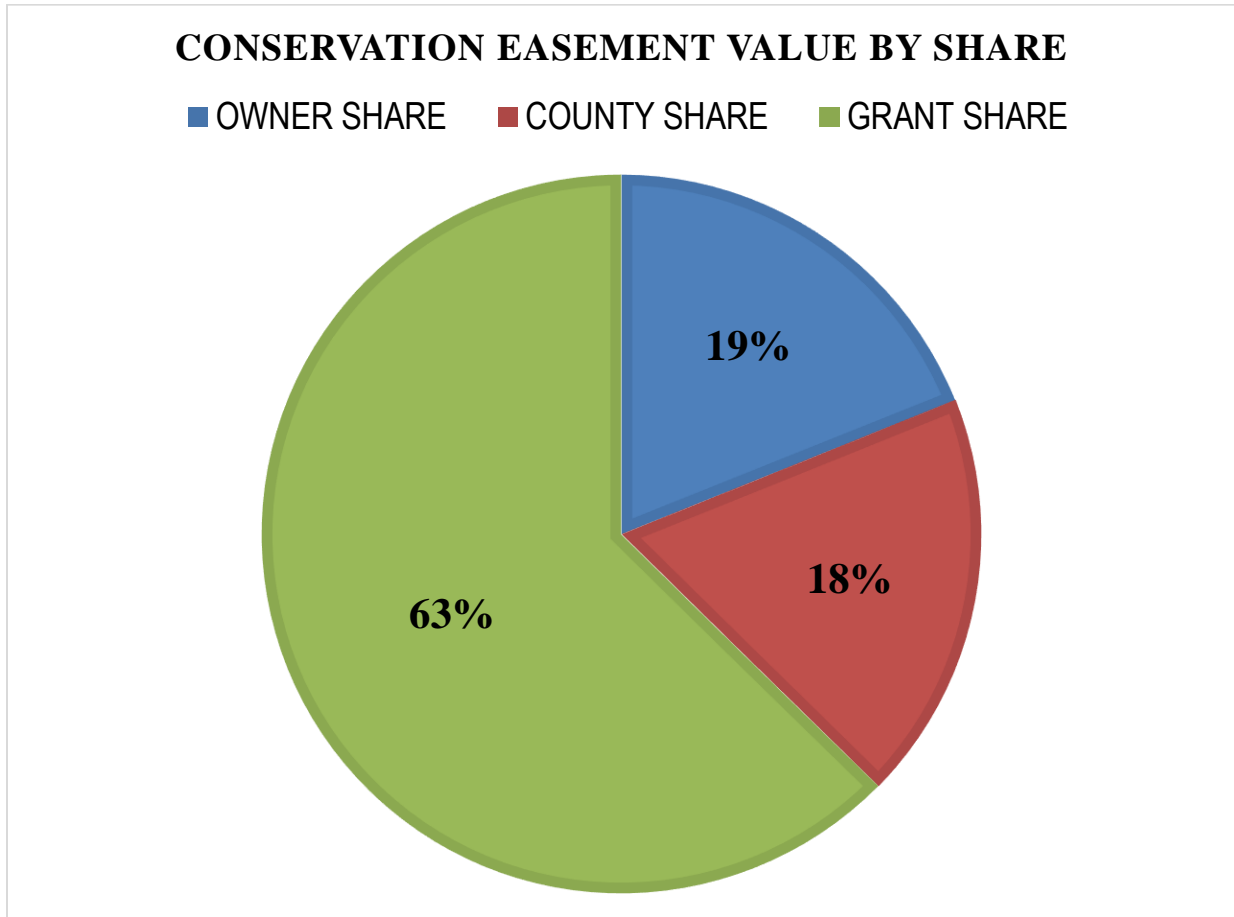
ALL ACRES 27,141 in conservation easement
(approximately 24% of Clarke County)

Source: Clarke County Planning Department GIS

* Data on retired DURs is not available prior to 2003
 DUR – Dwelling Unit Right
 VOF – Virginia Outdoors Foundation

TABLE 2B – Conservation Easement Purchase Value by Share, 2013-2021, with chart

TOTAL EASEMENT VALUE*	OWNER SHARE	COUNTY SHARE	GRANT SHARE
\$3,521,960	\$666,750	\$649,626	\$2,206,645



*The total easement value is the determined value of the DURs, either from appraisal or valuation by the Clarke County Conservation Easement Authority. The county share and grant share represent the amounts paid to the owner from the County and grant source. The owner share represents the remainder of the easement value not paid to the owner that may be tax deductible.

E. ENVIRONMENTAL LIMITATIONS AND CONSIDERATIONS

Clarke County has significant environmental and geological characteristics that present challenges for preservation of natural resources and for development. These characteristics are summarized below.

1. Geology

The most significant geological feature in the county is karst. Karst, consisting primarily of limestone, is characterized by large underground drainage systems, sinking streams, sinkholes, and caves due to the solubility of the limestone. The resultant hollow underground geology makes groundwater supplies very susceptible to pollution from surface and subsurface point and nonpoint sources. Groundwater pollutants are able to travel quickly over significant distances and can impact multiple aquifers due to the drainage networks that typically exist in karst. Surface pollutants are able to penetrate through to these same aquifers via sinking streams and sinkholes, making stormwater runoff a critical feature to manage. Approximately 90% of the County's land area west of the Shenandoah River contains karst.

The County experienced a major example of groundwater contamination firsthand in 1981. The Town of Berryville was forced to abandon its public well system due to contamination from nitrates, phenols, and herbicides -- none of which could be traced to a single source. The Town's water supply is now provided by a direct intake from the Shenandoah River and a water treatment facility. Instances of groundwater contamination have occurred in other parts of the county ranging from petrochemical contamination in the Pine Grove, White Post, and Shepherd's Mill Road areas to fecal coliform, nitrate, and pesticide contamination in various locations across the County. The County provides public water via the Prospect Hill spring to the Town of Boyce and to residences and businesses in Millwood, White Post, and Waterloo. Given the County's usage of the spring as its primary water source and the fact that all homes and businesses outside of these areas rely on private wells, groundwater protection is a major issue to be considered in land use planning and decision-making.

The County has implemented a number of different ordinances to help mitigate the potential for groundwater contamination. These ordinances include the following:

Septic Ordinance. This ordinance was adopted to provide local regulations for onsite sewage disposal systems that are more stringent than the State's minimum standards. These more stringent standards include greater setbacks from streams, springs, and sinkholes and the requirement of resistivity tests to ensure that geological voids do not exist under proposed drainfield sites. The County has also been active in regulating alternative onsite septic systems within the boundaries provided by the Code of Virginia.

Well Ordinance. This ordinance also provides more stringent standards for the placement of onsite wells for water supplies including greater setbacks than the State's minimum standards and more extensive well pump requirements.

Sinkhole Ordinance. The County's sinkhole ordinance was implemented to prohibit property owners from constructing on or placing objects or substances into sinkholes that are located on their

properties. The ordinance provides for several methods to mitigate the potential for groundwater pollution via sinkholes and enforcement tools to ensure compliance.

Spring Conservation Overlay District. The Spring Conservation Overlay District was adopted as part of the County's Zoning Ordinance to provide additional protection to the Prospect Hill Spring. This spring provides the public water supply for the Town of Boyce, the villages of Millwood and White Post, and the Waterloo commercial district. The spring was permitted by the State Health Department as a public water supply in 1977 and several studies were completed over the years concluding that the spring is very susceptible to contamination from point and nonpoint sources.

Overlay District regulations provide additional safeguards over and above the underlying zoning district provisions specifically targeted at preserving the spring's integrity. These include additional use restrictions and requirements, lot and structure requirements, and septic system requirements.

Erosion and Sediment Control Ordinance. The County adopted an Erosion and Sediment (E&S) Control Ordinance in 1990. The purpose of the Ordinance is to prevent the erosion of land and the deposit of sediment in waters so as to protect not only the County watersheds, but also the regional Chesapeake Bay watershed. This Ordinance is intended to reduce pollution and sedimentation of waterways so that fish and aquatic life, recreation, and other water related activities would not be adversely affected. Virginia Code Section 10.1-560 et. seq. provides for state standards and enables counties to fortify further the laws governing erosion control. The County amended the Ordinance in 1994 as part of the Mountain Land Plan. These amendments strengthened the Ordinance by requiring E&S plans for smaller areas of land disturbance and for non-agricultural pond construction.

Stormwater Ordinance. In 2010, Clarke County voluntarily adopted a stormwater management ordinance and design manual in advance of efforts by the State to strengthen the Virginia Stormwater Management Law (Code of Virginia §10.1-603.3). However, in 2016 the State created new regulations (Code of Virginia §62.1-44.15:24) that restricted localities from adopting stormwater regulations that are more stringent than State requirements unless they agreed to become authorities for a local Virginia Stormwater Management Program (VSMP). Clarke County chose to opt-out of operating a local VSMP, and as a result, repealed the stormwater management ordinance adopted in 2010. Clarke County regulations currently require land development activities to comply with the State's stormwater management regulations that are administered by the State.

2. Soils

The Clarke County Soil Survey (published 1982) included analyses of the soils' capacity to support for various potential uses. The results of the analyses for two potential uses, conventional on-site sewage disposal systems (septic tank and drainfield) and agriculture, are discussed below. Included in the analysis were major soil and landscape features such as physical properties, slope, depth to rock, depth to water tables, stones and rock outcrops, soil productivity, and landscape relief.

On-site Sewage Disposal Systems

Almost 75 % of the land (83,297 acres) in Clarke County has severe limitations for on-site sewage disposal systems, according to the soil survey. Septic fields in this soil will result in excessively slow absorption of effluent, surfacing of effluent, and hillside seepage. However, due to the limited

accuracy of the soil survey, there may be areas within those soils that are suitable for septic systems. Groundwater pollution can also result if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if the slope is excessive, or if the water table is near the surface.

In the remainder of the County, about 6 % of the land (6,682 acres) has moderate to severe limitations for on-site sewage disposal systems, 14 % (15,590 acres) has moderate limitations, and 5 % has not been rated.

TABLE 3 – Septic Systems Limitations

Category	Total Area (acres)	% of Total County Area
Severe	83,297	75%
Moderate to Severe	6,682	6%
Moderate	15,590	14%
Unrated	5,746	5%

These soil conditions present serious challenges to development in areas not served by public sewer and are an important reason why the County has chosen to focus development near the towns and villages where such infrastructure can be provided.

3. Agriculture

About 40% of the land in Clarke County is suitable for some type of cultivated farm crop. Best suited for agriculture are soil group 5, which forms a strip through the center of the County, and soil group 8, which includes the floodplain of the Shenandoah River. (Chapter III, Article 1, describes the Agricultural Land Plan, which contains a full discussion of agriculture in the County.)

In addition to the general soil classifications, the U.S. Department of Agriculture (USDA) characterizes soil types in terms of important farmland. This classification recognizes areas important to agricultural production, with responsibility given to governing bodies, in cooperation with the USDA, for classifying farmlands within their jurisdictions.

1. Prime farmland is land that has the best combination of physical characteristics for the production of food, fiber, forage, oilseed, and other agricultural crops, with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion. Prime farmland includes land that also possesses the above characteristics but is currently being used to produce livestock and timber. It does not include land already in or committed to urban development or water storage.
2. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of specific crops economically, when treated and managed according to acceptable farming methods.

Examples of such crops include citrus, tree nuts, olives, cranberries, fruit, including grapes, apples, and vegetables.

3. Farmland of statewide importance is land other than prime or unique farmland that is of statewide importance for the production of food, feed, fiber, forage, or oilseed crops.
4. Farmland of local importance is land that is neither prime nor unique but is of local importance for the production of food, feed, fiber, forage, or oilseed crops.
5. Other is land that is usually of little or no importance to agriculture and includes all map units not assigned to a higher class.

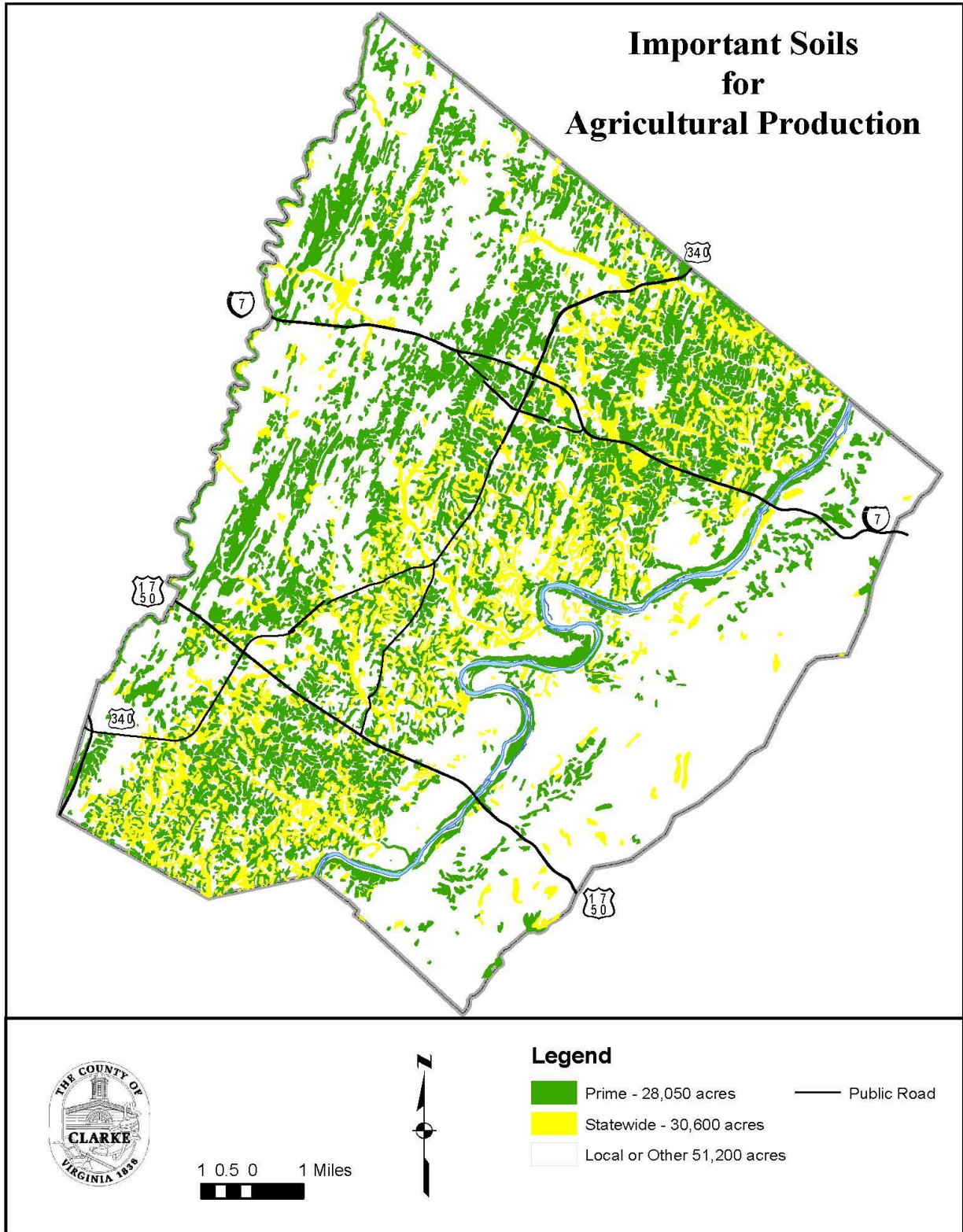
Clarke County further classified farmland types into categories described in Table 4 and shown on Map 4. These categories are used with the Land Evaluation and Site Assessment (LESA) system. The LESA system is a technique developed by the USDA’s Natural Resources Conservation Service (NRCS) to evaluate the productivity of agricultural land and its suitability or non-suitability for conversion to nonagricultural use. The NRCS, previously referred to as the Soil Conservation Service (SCS), assisted the County in developing the categories and implementing the system in 1982.

TABLE 4 – Important Farmland Values of Soils in Clarke County

Group #	Acreage	% of Total Land Area
1 (prime, nonrocky)	9,395	8.7%
2 (prime)	12,107	11.0%
3 (prime, rocky)	6,552	5.9%
4 (Statewide)	16,189	14.8%
5 (Statewide)	14,418	13.1%
6 (Local)	4,687	4.3%
7 (Local)	17,052	15.5%
8 (Local)	6,431	5.9%
9 (Local)	18,199	16.6%
10 (Other)	4,643	4.2%

* Soil Survey of Clarke County, 1982.

Map 7



F. POPULATION PROFILE

1. Population Growth and Density

Changes in population have extensive implications for planning because they affect the need for community facilities and services, land uses, and housing demand. Planning for population growth must be proactive to help guide growth as it occurs, rather than react to it after it is in place. Demographics and statistical information for this Comprehensive Plan are provided from the U.S. Census, the University of Virginia’s Weldon-Cooper Center, and the Virginia Employment Commission (VEC) among other sources. As the result of delays in the release of 2020 US Census Data for demographics, current estimates from American Community Survey are also used.

According to the 2020 Census, Clarke County's population increased from 14,034 in the 2010 Census to 14,783 – an increase of 5.3%. This increase is more consistent with the 4.5% increase from 1990-2000, rather than the 10.9% increase from 2000-2010. The period from 2000-2010 can be attributed to the housing “boom” experienced primarily from 2001-2005. Clarke County has maintained a slower growth rate slower than surrounding jurisdictions, consistently lower than projections provided by the Weldon-Cooper Center.

Population density within Clarke County (persons per square mile) increased from 57 in 1980, to 70 in 1990, to 72 in 2000, and to 80 persons per square mile in 2010. According to the 2020 Census, Clarke County has 83 persons per square mile. This level of density remains considerably lower than in all surrounding counties, being less than half that of the next most dense jurisdiction, Warren County.

TABLE 5 – Population and Growth Rates, 1950-2020

Jurisdiction*	1950	1960	1970	1980	1990	2000	2010	2020
Clarke	7,074	7,942 (12.2%)	8,102 (2.0%)	9,965 (23.0%)	12,101 (21.4%)	12,652 (4.5%)	14,034 (10.9%)	14,783 (5.3%)
Loudoun	21,147	24,549 (16.1%)	37,150 (51.3%)	57,427 (54.6%)	86,129 (50.0%)	169,599 (96.9%)	312,311 (84.1%)	420,959 (34.8%)
Frederick/City of Winchester	31,378	37,051 (18.1%)	48,322 (30.4%)	54,367 (12.5%)	67,686 (24.5%)	82,794 (22.3%)	104,508 (26.2%)	119,539 (14.4%)
Warren	14,801	14,655 (-1.0%)	15,301 (4.4%)	21,200 (38.6%)	26,142 (23.3%)	31,584 (20.8%)	37,575 (19.0%)	40,727 (8.4%)
Fauquier	21,248	24,066 (13.3%)	26,375 (10.0%)	35,889 (36.1%)	48,860 (36.1%)	55,139 (12.9%)	65,203 (18.3%)	72,972 (11.9%)
Fairfax	98,557	275,002 (179.0%)	454,275 (65.2%)	598,901 (31.8%)	818,584 (36.7%)	969,749 (18.4%)	1,081,726 (11.5%)	1,150,309 (6.3%)
Berkeley, WV	30,359	33,791 (11.3%)	36,356 (7.6%)	46,775 (28.7%)	59,253 (26.7%)	75,905 (28.1%)	104,169 (37.2%)	122,076 (17.2%)
Jefferson, WV	17,184	18,665 (8.6%)	21,280 (14.0%)	30,302 (42.4%)	35,926 (18.6%)	42,190 (17.4%)	53,498 (26.8%)	57,701 (7.9%)

Source: US Census 2020

*County government unless otherwise specified

Clarke County includes four census tracts. Census Tract 101.01 represents the northern portion of the County. Census Tract 101.02 includes the Town of Berryville. Census Tract 102 includes the southwestern portion of Clarke County. Census Tract 103 includes the area east of the Shenandoah River. Of these census tracts, the majority of growth in the past decade has been in Census Tract 103, with a 9.6% population change. Second in growth change is Census Tract 101.01, with an increase of 8.6%. Census Tract 101.02 and Census Tract 102 only had a change of approximately 2%.

The U.S. Census does not make projections. The University of Virginia’s Weldon-Cooper Center, through a contractual arrangement with the Virginia Employment Commission (VEC), establishes the official population projections for the state. The VEC projected population for Clarke in 2045 is 16,123, a 9.1 percent increase from the 2020 U.S. Census. It should be noted that population projections are based on local and regional growth trends. A locality’s growth control measures and approach to land use is not included as a factor in making the projections.

Clarke County's neighboring counties continued to experience significant growth. As a point of reference, the Code of Virginia establishes a decadal growth rate of 10% or more as “high growth.” Loudoun’s growth of almost 100% in the 1990s was nearly repeated with an 84.1% rate in the 2000-2010 period. From 2010 to 2020, Loudoun County had a slower, but still significant, growth of 34.8%. Projections indicate that Loudoun County’s population will increase by 72.5% between 2020 and 2045. Fauquier’s growth rate increased from 13% in the 1990s to 18% in the 2000s, and 11.9% between 2010 and 2020. Fauquier’s population is expected to increase 20.5% by 2045. The combined population of Frederick and Winchester grew by 22% in the 1990s, increased by 26.2% between 2000 and 2010, and increased by 14.4% in the past decade. The 21% Warren County growth rate in the 1990s slowed slightly to 19% in 2010. Between 2010 and 2020 Warren County had a growth rate of 8.4%. The 17% rate of growth in Jefferson County in the 1990s increased to 26.8% between 2000 and 2010. Similarly, the Berkeley County growth rate also increased to 37.2% in 2010, followed by a decline to 17.2% in 2020. Jefferson and Berkeley Counties are projected to continue growing at similar rates over the next decade.

TABLE 6 – Population Projections, 2020-2040

Jurisdiction	2020*	2025**	Growth % 2020-2025	2035**	Growth % 2025-2035	2045**	Growth % 2035-2045
Clarke	14,783	14,894	.8%	15,560	4.5%	16,123	3.6%
Loudoun	420,959	492,696	17.0%	611,954	24.2%	726,245	18.7%
Frederick/City of Winchester	119,539	127,265	6.5%	142,917	12.3%	157,526	10.2%
Warren	40,727	42,108	3.4%	45,679	8.5%	48,930	7.1%
Fauquier	72,972	75,046	2.8%	81,775	9.0%	87,928	7.5%
Fairfax	1,150,309	1,203,264	4.6%	1,276,124	6.1%	1,340,323	5.0%
Berkeley Co., WV	122,076	128,196***	5.0%	144,886***	13.0%	No data	No data
Jefferson Co., WV	57,701	62,463***	8.3%	68,245***	9.3%	No data	No data

Sources:

* US Census (2020)

** University of Virginia’s Weldon-Cooper Center (projections)

*** West Virginia University’s Bureau of Business and Economic Research unpublished data, published by the WV Solid Waste Management Board

The 60 miles to Washington, D.C. and the buffer afforded by the Blue Ridge along the County's eastern border have in the past shielded Clarke County somewhat from urban development pressures. However, Fairfax County is now heavily urbanized with 1,150,309 residents (2,833 people per sq. mi.), and Loudoun County is among the fastest growing jurisdictions in the nation. In addition, major employment centers are continuing to be developed in Loudoun and Prince William Counties. Because of this continued growth in surrounding counties, it can be expected that Clarke County's desirability for residential and economic growth will continue to increase. It thus becomes increasingly important to provide Clarke County's residents with land-use planning that balances diverse community interests.

2. Mobility and In-Migration

The 2010 Census revealed that Clarke County had an increase of people moving into the county versus moving out (Migration) from 9.5% to 11.4%. The County also had a higher rate of deaths versus births (Natural Increase) from 0% to -0.5%. During that period, the increase in migration is likely a result of the increase in new home construction from 2001-2005. Another factor for the increase in migration is the high demand for housing in Clarke County, driven by homebuyers seeking a quality rural lifestyle. The increase in the rate of deaths versus births is indicative of an aging population as younger residents and families are not coming to or remaining in the County as they had in previous years. The net migration rate for Virginia and the natural increase rate both increased from 2000-2010. Migration and natural rates of increase were greater for surrounding jurisdictions. The 2020 Census has not released migration and natural increase data at this time. Estimates of similar data, such as Cumulative Estimates of the Components of Population Change, are consistent with the migration trend seen in the 2010 Census.

TABLE 7 – Migration and Rates of Natural Increase

JURISDICTION	MIGRATION		NATURAL INCREASE	
	2000	2010	2000	2010
Clarke	9.5%	11.4%	0.0%	-0.5%
Loudoun	37.9%	61.2%	10.9%	22.9%
Frederick	10.6%	24.9%	3.5%	7.3%
City of Winchester	9.3%	4.7%	3.4%	6.4%
Warren	6.0%	14.0%	2.5%	5.0%
Fauquier	11.4%	12.6%	2.7%	5.7%
Virginia (statewide)	3.7%	6.5%	3.2%	6.5%

Sources: US Census 2010

3. Commuting Patterns

According to the U.S. Census Bureau’s 2019 American Community Survey Estimates, roughly 2/3 of the County’s workforce were employed outside of the County. 69.7% of residents worked outside of the County as compared to 23.6% that worked in the County. As indicated in the table below, the average travel time to work for commuters is 38.1 minutes. The American Community Survey results indicated that 23.1% of workers reported a daily commute to work of 60 minutes or greater. The top five destinations for commuters include Loudoun County, Fairfax County, City of Winchester, Frederick County, and Washington, DC.

TABLE 8A – Commuting Patterns

	2000	2010	2019*
Mean Travel Times (min)	32.4	34.5	38.1
Workers 16 yrs/older	n/a	6,952	7,082
Drove alone (%)	77.3%	82.6%	80.1%
Carpool (%)	10.8%	9.7%	10.3%
Walked (%)	n/a	1.6%	1.5%
Other/Public Trans (%)	n/a	1.4%	1.3%
Worked from home (%)	n/a	4.7%	6.7%

Source: 2010 and 2019 American Community Survey

TABLE 8B – Top 10 Places Residents Are Commuting To and From

Top 10 places residents are commuting to:		Top 10 places non-residents are commuting from:	
AREA	WORKERS	AREA	WORKERS
Loudoun County	1,616	Frederick County	876
Fairfax County	1,077	Berkeley County, WV	262
City of Winchester	673	City of Winchester	253
Frederick County	509	Loudoun County	199
Prince William County	215	Jefferson County, WV	195
Washington, DC	193	Warren County	129
Montgomery County, MD	175	Shenandoah County	91
Arlington County	147	Hampshire County, WV	69
Warren County	141	Fairfax County	66
Fauquier County, VA	134	Prince William County	42

Source: Virginia Employment Commission, Clarke County Community Profile, updated 1/6/2022

4. Employment and Wages

The table below lists the top 10 employers in Clarke County, as of January 6, 2022. Statistics are not publicly available for the Mt. Weather Emergency Operations Center.

TABLE 9 – Top 10 Employers, January 2022

EMPLOYER	INDUSTRY
Berryville Graphics	Printing
Clarke County School Board	Public School
Clarke County	Local Government
Grafton School, Inc.	Health Care
Martin’s Food Market	Retail
American Woodmark Corporation	Wholesale
Powhatan School	Private School
Bank of Clarke County	Banking
Cochrans Lumber & Millwork Inc	Industrial
The Red Gate Group Limited	Federal Contracting

Source: Virginia Employment Commission, Clarke County Community Profile, updated 1/6/2022

As noted in the tables below, the County’s unemployment rate in November of 2021 was 2.1% compared to the statewide rate of 3.4%. This represents a recovery from the spike in unemployment that occurred in 2020 due to the Covid-19 pandemic. Clarke County is similar in comparison to other localities in the region, all of which have lower than average unemployment rates in comparison to the state average, and significantly lower rates than the national average.

TABLE 10A – Unemployment Rate

	2000	2010	2019	2020	2021 (11/2021)
Employed Residents	6,801	7,178	7,531	7,157	No data
County Unemployment	1.6%	6.9%	2.4%	4.6%	2.1%
State Unemployment	2.3%	7.3%	2.7%	6.3%	3.4%

Source: U.S. Bureau of Labor Statistics, annual average unless otherwise noted.

TABLE 10B – Unemployment Rate by Year, 2010-2021 (November)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 (11/2021)
Clarke	6.8%	5.7%	5.1%	4.6%	4.3%	3.9%	3.5%	3.4%	2.9%	2.4%	4.5%	2.1%
Loudoun	5.3%	4.7%	4.4%	4.3%	4.2%	3.5%	3.1%	3.0%	2.5%	2.2%	5.4%	2.1%
Frederick	7.6%	6.5%	5.7%	5.2%	4.6%	3.9%	3.4%	3.2%	2.6%	2.3%	4.6%	2.0%
City of Winchester	8.5%	7.4%	6.5%	5.7%	5.0%	4.3%	4.0%	3.6%	2.9%	2.7%	5.8%	2.3%
Warren	8.3%	7.4%	6.6%	6.0%	5.5%	4.7%	4.0%	3.7%	3.0%	2.7%	5.9%	2.4%
Fauquier	6.3%	5.5%	5.0%	4.8%	4.5%	3.9%	3.4%	3.3%	2.6%	2.3%	4.7%	2.0%
Fairfax	5.5%	4.8%	4.6%	4.4%	4.2%	3.8%	3.1%	3.2%	2.6%	2.4%	5.5%	2.3%
Berkeley Co., WV	8.6%	7.5%	6.4%	5.6%	5.4%	4.8%	4.0%	3.7%	4.0%	3.6%	6.2%	1.8%
Jefferson Co., WV	6.7%	6.1%	5.2%	4.7%	4.6%	4.0%	3.4%	3.1%	3.3%	3.1%	6.0%	1.5%
Virginia	7.3%	6.5%	6.0%	5.6%	5.1%	4.4%	4.0%	3.7%	3.0%	2.7%	6.3%	3.4%
West Virginia	8.6%	7.8%	7.3%	6.7%	6.5%	6.6%	6.1%	5.2%	5.2%	4.9%	8.4%	4.0%
United States	9.6%	8.9%	8.1%	7.4%	6.2%	5.3%	4.9%	4.4%	3.9%	3.7%	8.1%	4.2%

Sources: U.S. Bureau of Labor Statistics, annual average unless otherwise noted.

TABLE 11 – Employment and Wages

Industry	2012		2020-2021**		
	# of Jobs*	Avg Weekly Wage*	# of Jobs*	# of New Hires**	Avg Weekly Wage*
Agriculture, Forestry, Fishing, Hunting	151	\$507	176	26	\$674
Construction	310	\$715	299	32	\$1,005
Manufacturing	no data	no data	628	115	\$918
Wholesale Trade	156	\$1,367	171	12	\$1,495
Retail Trade	246	\$403	322	79	\$535
Transportation and Warehousing	16	\$668	23	63	\$1,158
Information	17	\$1,104	26	0	\$1,120
Finance and Insurance	92	\$847	79	0	\$1,265
Real Estate, Rental, and Leasing	48	\$756	27	7	\$641
Professional, Scientific, and Technical Services	228	\$1,892	189	13	\$1,849
Administrative, Support, and Waste Management	107	\$483	125	21	\$610
Educational Services	262	\$810	216	44	\$961
Health Care and Social Assistance	391	\$460	218	55	\$723
Arts, Entertainment, and Recreation	57	\$366	19	6	\$567
Accommodation and Food Services	228	\$267	229	73	\$456
Other Services (except Public Administration)	136	\$741	147	16	\$589
Public Administration	722	\$840	670	24	\$1,075

Source: * Virginia Employment Commission, Economic Information & Analytics, Quarterly Census of Employment and Wages (QCEW), 3rd Quarter 2012 and 2nd Quarter 2021. **U.S. Census Bureau, Local Employment Dynamics (LED) Program, 3rd Quarter 2020, all ownerships.

5. Income

a. **Median Household Income.** Median household income is the middle income in a distribution of all family incomes. The U.S. Census, in conjunction with American Community Survey, conducts estimates of income on a periodic basis. In 2019, the median household income was \$80,026 – a significant increase from the 2000 Census figure of \$59,750. This figure exceeds the statewide median of \$74,222 and also exceeds figures in Frederick County (\$78,002), City of Winchester (\$58,818), and Warren County (\$69,116). The County’s figure was less than the median income in Jefferson County, WV (\$80,430), Fairfax County (\$124,831), Loudoun County (\$142,299), and Fauquier County (\$100,783).

b. **Per Capita Income.** Per capita income is the average income per person in a defined area. In Clarke County, the per capita income was \$41,332 per the 2019 estimates – up from \$37,551 reported in the 2010 Census. This exceeds the state average of \$39,278. Similarly, the County’s income figure exceeded Frederick County (\$35,123), City of Winchester (\$30,859), Warren County (\$32,086), and Jefferson County, WV (\$36,305). The County’s figure was less than Fairfax County (\$56,231), Loudoun County (\$55,744), and Fauquier County (\$45,408).

c. **Poverty Status.** Poverty is defined by the U.S. Department of Housing and Urban Development as an income level of 30% or less of median income varied by household size. Per the 2019 estimates, 6.2% of Clarke County’s residents were determined to be below the poverty level. This figure is well below the statewide average of 9.2% and also below Frederick County (7.4%), City of Winchester (16.3%), Warren County (10.1%), and Jefferson County, WV (7.8%). The figure was above the figures for Fairfax (5.3%), Loudoun (3.2%) and Fauquier Counties (6.0%).

6. Ethnic Composition

The ethnic composition of a community is a key element of its character. Change in the relative size of ethnic groups can be a challenge and an opportunity for a community. Currently, the County is relatively homogenous, but this has not always been the case. The first census of Clarke County, in 1840, showed 55% of population to be African-American (52% slaves and 3% free colored), but this gradually changed over time. In 2000, African-American residents made up 6.7% of the County’s population. This number decreased to 5.5% in the 2010 Census, and is currently at 4.7% based on 2021 census estimates. Over the same time period, the County’s Hispanic population increased from 1.5% to 6.4% reflecting national trends.

TABLE 12 – Ethnic Composition of Population

ETHNICITY	2000	2010	2021
Population**	12,652	14,034	14,783
White persons (%)*	91.1%	91.0%	90.6%
Black persons (%)*	6.7%	5.5%	4.7%
Hispanic/Latino persons (%)*	1.5%	3.6%	6.4%
American Indian/Alaska Native (%)*	n/a	0.3%	.7%
Asian persons (%)*	n/a	1.1%	1.4%
Hawaiian/Pacific Islander persons (%)*	n/a	0.1%	.1%
Two or more races (%)*	n/a	2.0%	2.5%
White persons not Hispanic (%)*	n/a	88.0%	85.3%

Source: *US Census 2000, 2010, and Population Estimates, July 2021. ** US Census 2020.

7. Age Distribution

Population age distribution is very important from a planning perspective for several reasons. People under age 18 and over age 65 years are generally more dependent on family or public resources than those of prime working ages. Therefore, a large population in these age brackets can dramatically influence per capita income and buying power.

According to the Census Bureau’s 2019 American Community Survey 5 Year Estimates, nationally 25.0% of the population is 19 years or younger, 58.6% is between the ages of 20 and 64, and 16.5% is 65 and older. For Virginia, 24.6% of the population is 19 years or younger, 59.4% is between the ages of 20 and 64, and 15.9% is 65 and older. In comparison, Clarke County’s population is a little older on average with 22.6% below 20 years of age, 56.7% between 20 and 64, and 20.7% is 65 and older.

TABLE 13 – Age Distribution of Population in Clarke County

Age Range	1970	1980	1990	2000	2010*	2019*
17 or younger	32.4%	27.0%	22.8%	23.4%	23.2%	20.7%
Under 5 years	8.0%	6.0%	6.4%	5.2%	5.2%	4.4%
5-17 years	24.4%	21.0%	16.4%	18.2%	18.0%	16.2%
18-64 years	56.0%	59.5%	63.2%	62.0%	61.5%	58.6%
65 years or older	11.6%	13.5%	14.0%	14.6%	15.3%	20.7%

Sources: American Community Survey, 2010 and 2019 5-Year Estimates

8. Educational Attainment

The US Census Bureau’s American Community Survey 5-year Estimates (2019) indicate that 89.1% of persons over 25 years of age in Clarke County were high school graduates. This figure is slightly lower than the statewide average of 90%. 32.2% of persons over 25 years of age have completed a four year college degree which is slightly below the statewide average of 39.6%. Increases in both rates are shown in the table below.

TABLE 14 – Educational Attainment of Persons over 25 Years of Age in Clarke County

Year	High School Diploma or Greater	4 year college degree or greater
1980	57.3%	15.7%
1990	75.0%	18.6%
2000	82.1%	23.5%
2010*	87.5%	29.2%
2019*	89.1%	32.2%

Sources: US Census (1980, 1990, and 2000)

*2010 & 2019 American Community Survey 5-year Estimates

G. HOUSING PATTERNS

1. Housing Growth

Since sliding scale zoning was implemented in 1980, the County has experienced a positive growth that fluctuates depending on supply and demand for new housing. From 1990 until 2010 the decadal growth rate was relatively stable, averaging approximately 16%. In 2020, the decadal growth rate in the County dropped to 3.4%. The lower demand for housing, resulting from the housing recession that began in 2008, is the primary factor for this change.

TABLE 15A – Housing Growth

	1980	1990	2000	2010	2020
Population	9,965	12,101	12,652	14,034	14,783
<i>Percentage Increase</i>	<i>n/a</i>	<i>21.4%</i>	<i>4.5%</i>	<i>10.9%</i>	<i>5.3%</i>
# of Dwelling Units	3,961	4,531	5,388	6,185	6,396*
<i>Percentage Increase</i>	<i>n/a</i>	<i>14.4%</i>	<i>18.9%</i>	<i>14.8%</i>	<i>3.4%*</i>
Persons Per Household	2.52	2.67	2.35	2.27	2.54*

Sources: US Census (2020)

* 2019 American Community Survey 5-year Estimates

2. Distribution of Housing

Distribution of the housing stock influences the County's ability to provide public services, affects the amount of land available for agriculture, and affects the rural and scenic character of the County. For these reasons, the County has designated Berryville and Boyce as the most appropriate areas for residential growth to occur. However, from 1980 to 1992, fewer than 4% of the permits issued for new dwelling units were within the designated growth area. In the 1980s, 98% of new units were built outside of Berryville, compared with 85% of new units in the 1990s. From 2000 to 2009, 53% of new housing units were built outside of the Towns. Despite the slowdown in the residential housing market, the distribution of houses remained relatively consistent between 2010 and 2020 with 56% of new housing in the County and 44% in the Towns.

The table below lists the distribution of residential lots and housing units approved by decade in the County and in the Towns of Berryville and Boyce.

TABLE 15B – Residential Lots and Housing Units, 1970-2020

	1970-1979	1980-1989	1990-1999	2000-2009	2010-2020
New residential lots-Berryville	n/a	n/a	407	358	82
New housing units-Berryville	n/a	14	224	403	157
New residential lots-Boyce	n/a	n/a	n/a	132	22
New housing units-Boyce	n/a	n/a	n/a	86	47
New residential lots-County	456	350	305	323	69
<i>East of Shenandoah River</i>	<i>n/a</i>	<i>n/a</i>	65	82	14
<i>West of Shenandoah River</i>	<i>n/a</i>	<i>n/a</i>	240	246	55
New housing units-County	n/a	665	556	561	263
Total # of new residential lots	n/a	n/a	712	813	173
Total # of new housing units	777	679	780	1,050	467

With the adoption of the Berryville Area Plan and the approval of several major subdivisions within that area, along with three new subdivisions developed within the Town of Boyce, the County is successfully directing future growth to the designated areas.

The table below lists the major subdivisions developed in Boyce and Berryville between 1995 and 2020. In addition, Fellowship Square, a 50-lot subdivision was recently approved by the Town of Berryville.

TABLE 15C – Major Subdivisions Added in the Towns of Boyce and Berryville, 1995-2020

	Total Acreage	Total Number of Lots
Town of Berryville		
The Hermitage	107	284
Battlefield Estates	208	200
Berryville Glen	72	71
Darbybrook	38	85
Southgate	11	26
Shenandoah Crossing	19	82
Town of Boyce		
Boyce Crossing	21	43
Roseville Downs	10	28
Meadow View	13	41

3. Housing Condition

The predominant dwelling unit type in Clarke County is single-family detached, which represents 91.8% of all housing units. Of the 6,345 housing units identified by the 2019 American Community Survey Estimates, there was a total vacancy rate of 11.6%. The census considers two factors when measuring the condition of housing: lack of complete plumbing and overcrowding (more than one occupant per room). The number of dwelling units lacking complete plumbing in Clarke County declined by 56% from 1980 to 1990 (334 to 147), and by 76% from 1990 to 2000 (147 to 35 or 0.7% of the total houses). From 2000-2010, that number dropped from 35 to 24 homes. The 2019 American Community Survey Estimates indicates that 100% of Clarke County's occupied housing units include complete plumbing facilities. Housing units considered overcrowded (one or more persons per room) fluctuated due to economic conditions since 1980. In 1980 there were 101 overcrowded units. This increased to 115 in 1990, declined to 29 in 2000, increased to 67 in 2010, and declined to 36 in 2020.

4. Housing Affordability

Housing affordability is measured by the percentage of monthly income spent on rent or mortgage. Housing is considered affordable if the household costs are not more than 30% of monthly income. The 2019 American Community Survey Estimates state that 28.5% of county households in occupied housing units spend 30% or more of their monthly income on housing costs. The median monthly mortgage amount was \$1,776. The median monthly gross rent was \$1,151.

For occupied housing, another measure of affordability is a purchase price of not more than 3 times a household’s annual income. According to the 2019 American Community Survey Estimates, the median family income in Clarke County was \$80,026, and the median value of an owner-occupied housing unit was \$347,200 (over 4.3 times the median family income).

TABLE 16 --- Other Housing Statistics

Total Housing Units	6,345
Occupied Housing Units	5,612 (88.4%)
Vacant Housing Units	733 (11.6%)
Owner-Occupied Units	75%
Renter-Occupied Units	25%
Homeowner Vacancy Rate*	1%
Rental Vacancy Rate	5.5%
Year Structure Built (% of total)	
2000 or later	14.3%
1990-1999	11.6
1980-1989	13.6
1960-1979	27.0%
1940-1959	15.8%
1939 or earlier	17.7%
Median Home Value (owner occupied)	\$347,200
Median Monthly Housing Costs	\$1,338
Median Gross Rent	\$1,151

Source: 2019 American Community Survey 5-Year Estimates

* Homeowner Vacancy rate is the proportion of homeowner inventory that is vacant “for sale.”

H. LAND USE

1. Land Use Types

Land use in Clarke County is predominantly agricultural, forested, and open space. Commercial intersections, villages, towns, and rural subdivisions are lightly dispersed throughout the County. The Town of Berryville, the predominant area of nonrural land use, includes industrial land, a central business district, and relatively dense residential development. The Town of Boyce also contains development on a nonrural scale with three residential subdivisions built in the past ten years surrounding a modest sized town core. Forest covers much of the rugged land east of the Shenandoah River. Suburban residential parcels located east of the Shenandoah River (lots under six acres) consume a significant portion of this land, 10.4 % as opposed to 5.3 % on land west of the river. This is due primarily to the presence of subdivisions that were platted prior to the 1980 implementation of sliding-scale zoning such as Shenandoah Retreat and Carefree Acres. The land west of the Shenandoah River is the agricultural heartland of Clarke County. Almost 70% of this land is used for agriculture-related operations, and almost 85% is in parcels of 20 acres or more.

There are four distinct references to agricultural land:

1. Clarke County Zoning Ordinance. The AOC and FOC Zoning Districts of the Clarke County Zoning Ordinance both allow agricultural land uses. The AOC District is located in most of the Valley portion of the County, located west of the Shenandoah River. It is primarily intended for agricultural uses. AOC District regulations distinguish a parcel as agricultural when it is 20 or more acres in land area. Further distinctions exist for parcels that are 100 or more acres in size. The FOC District is located on most of the Blue Ridge portion of the County, located east of the Shenandoah River. It is primarily intended for forests.
2. Clarke County Agricultural and Forestal Districts. Agricultural and Forestal Districts are a designation established by the Virginia General Assembly (Code of Virginia, §15.2-4300 through 4314 as amended) to protect and enhance agricultural land as an economic and environmental resource. Landowners voluntarily apply for inclusion in a district, but their property must meet specific criteria as agricultural land. By being in a district, the property is automatically eligible for taxation based solely on its agricultural value. The Clarke County Agricultural and Forestal District program was first established by the Board of Supervisors in 1986 and is subject to renewal every seven years.
3. Agricultural Land Classification. The Clarke County Commissioner of Revenue classifies land for the purpose of taxation based on actual use, following criteria established by the Virginia Department of Taxation.
4. Agriculture (cropland/pasture) Land Cover
Aerial photography, when read by experts, provides the most accurate accounting for actual land use. The Smithsonian Institution, as part of an effort to identify wildlife habitats, also identified agricultural activities.

These four designations have significant overlap. It is possible for a parcel to be in one category but not in the other three, depending on site-specific circumstances.

Below is a table listing the land area of the County and the Towns of Berryville and Boyce according to current land use, and a table listing land area by zoning district classification:

TABLE 17 – Current Land Use

LAND USE TYPES	Berryville (acres/%)	Boyce (acres/%)	County East (acres/%)	County West (acres/%)	Total (acres/%)
Urban Residential*					
With Dwellings	677/0.6%	117/0.1%			794/0.7%
Without Dwellings	233/0.2%	610/0.05%			294/0.3%
Suburban Residential**					
With Dwellings			2,324/2.0%	3,657/3.2%	5,981/5.2%
Without Dwellings			1,035/0.9%	675/0.6%	1,710/1.5%
Rural Residential***					
With Dwellings			3,006/2.6%	4,836/4.2%	7,842/6.9%
Without Dwellings			1,069/0.9%	1,300/1.1%	2,369/2.1%
Agricultural					
20 to <100 acre parcels			10,046/8.8%	29,552/25.9%	39,598/34.7%
100+ acre parcels			7,229/6.3%	40,925/35.9%	48,154/42.2%
Other<>					
Govt. parcels			2,280/2.0%	1,095/1.0%	3,375/3.0%
Commercial****			6/0.005%	167/0.1%	173/0.2%
Shenandoah River					946/0.8%
Roads					2,396/2.1%

Sources: Clarke County GIS and Commissioner of the Revenue records

Note: Parcels located in the County may be included in more than one use type. Land use types are derived from designations used by the Commissioner of the Revenue.

* Urban Residential – Limited to parcels located in the Towns of Berryville and Boyce

** Suburban Residential – Limited to parcels located in the County and less than 6 acres in size

*** Rural Residential – Limited to parcels located in the County and between 6 and 20 acres in size

****This item does not include commercial acreage located within the Towns of Berryville and Boyce (see Table 18)

Total acreage of County – 114,103 (source GIS)

<> Other is a category that includes land uses that do not fit within the larger land use categories, such as land owned by government entities, commercially zoned property, land within public rights-of-way, and land that includes the Shenandoah River.

TABLE 18 – County Zoning Districts; Land Uses in Berryville and Boyce

Land Use Categories	Acres	%
Agricultural-Open Space-Conservation (AOC)	84,112*	72.7%
Forestal-Open Space-Conservation (FOC)	27,048	23.7%
Rural Residential	801	0.7%
Neighborhood Commercial	33	<.01%
Highway Commercial	143	0.1%
Light Industrial	0	0.0%
Boyce	232	0.2%
Residential	204	
Commercial	28	
Berryville	1,462	1.3%
Residential	1,045	
Commercial	384	
Berryville Annexation Area	257	0.2%
Residential	156	
Commercial	26	
Institutional/Open Space	75	
Industrial	0	
Total Acreage	114,103	100.0%

* includes 946 acres of Shenandoah River

2. Zoning and Subdivision

In 1980, Clarke County adopted a method of rural land preservation known as sliding-scale zoning. The primary purpose of sliding-scale zoning is to preserve agricultural land and the rural character of the County. This is accomplished by limiting the number of parcels that may be created, limiting the size of new parcels, and keeping residual parcels as large as possible. Sliding-scale zoning allocates dwelling unit rights (DURs) for parcels of land and a maximum number of dwelling units that may be built in the Agricultural/Open Space/Conservation (AOC) Zoning District and Forestal/Open Space/Conservation (FOC) Zoning District. That number cannot be increased unless parcels are rezoned in designated growth areas but is decreased as landowners build houses or place their property under permanent open-space easement. Approximately 27,111 acres of the County have been placed in permanent open-space easement. An additional 4,000 acres is recreational open space, primarily the Appalachian Trail.

A total of 6,696 DURs were initially allocated when sliding-scale zoning was implemented in 1980. As of December 2021, a total of 3,412 DURs remain unused. This equates to 2,541 DURs in AOC areas west of the Shenandoah River, and 1,158 DURs in FOC areas east of the river. When all DURs have been used in the AOC and FOC areas, the number of dwelling units in the rural portion of the County is intended to remain stable in perpetuity.

There are also areas of higher density residential parcels located in the unincorporated areas of the

County that are zoned Rural Residential (RR). The Rural Residential zoning designation was used to identify concentrations of residential development that existed prior to the 1980 implementation of sliding-scale zoning. These areas include the villages of Millwood and White Post, Shenandoah Retreat, and scattered parcels around the towns of Berryville and Boyce. RR-zoned parcels do not have DURs assigned to them and are instead governed by minimum lot size and other dimensional standards. Although there are some undeveloped RR-zoned parcels remaining, full build-out of these parcels would have a minimal impact on the total number of dwellings in the County. The RR zoning designation is not intended to be used to create new residential developments or to expand the number of parcels in existing developments or villages.

Analysis of subdivision records from 1970 to 2005 shows two important trends. The population of Clarke County (outside the Berryville Area) and the number of households continued to grow, albeit at a slower rate in the 1990s, compared with the 1980s and the first half of the 2000s. However, parcel creation occurred more slowly when compared to the number of new houses. There were 2.0 new houses built for every lot created in this decade compared to 1.8 houses for every new lot in the 1990s. In addition, the average number of new lots created per subdivision decreased significantly, along with the acreage involved in subdivisions. These trends continued into the past two decades, showing the impact of the County’s policies to direct residential growth. These trends are very significant when compared with the rates of growth in Loudoun and Frederick Counties.

TABLE 19 – Lots Created & Houses Built Outside of the Towns of Berryville and Boyce

	1970-1979	1980-1989	1990-2000	2001-2010	2011-2020
Lots Created	456	350	330	312	64
Houses Built	777	665	624	516	253

To complement the land preservation elements of sliding-scale zoning, the County and Town of Berryville have jointly adopted the Berryville Area Plan (BAP) as a master plan for the development of County lands planned for annexation into the Town of Berryville. As estimated in 1992, the BAP allows for approximately 500 new dwellings to be developed and annexed to the Town of Berryville. The total number of housing units expected in the Berryville area at full build-out is about 2,200 (1,100 existing + 600 new in pre-1989 town limits + 500 new in annexation area). Based on adopted policies and zoning regulations, the Town population would increase from 4,185 in 2010 to about 5,500 at full build-out (assuming 2.5 people per household, county average in the 2000 Census).

In the 2000s, three major subdivisions were developed in the Town of Boyce that added a total of 112 new lots. As of 2013, development in these subdivisions has either reached or is close to full build-out.

Currently, there are 280 acres of commercially zoned land in Berryville, 6 acres to be annexed by Berryville, 30 acres in the Town of Boyce, and 158 acres elsewhere in the County (Double Tollgate, Waterloo, etc.), for a total of 474 acres of land in the County zoned commercial. This does not include the 248 acres of light industrial or business park zoning. The Urban Land Institute defines a neighborhood commercial center as ranging from 3 to 10 acres, with a minimum resident population ranging from 3,000 to 40,000. A community commercial center ranges from 10 to 30 acres, with a minimum resident population ranging from 40,000 to 150,000 (Shopping Center Development

Handbook. Third Edition. Washington, DC: ULI-the Urban Land Institute, 1999, page 13).

Comparing anticipated population growth against the area currently zoned commercial suggests that additional commercial zoning will not be necessary. However, the location of some of the current commercially zoned property may not meet market needs, and some, because of location and other factors, is unlikely to be developed. The rezoning of such properties to more usable zoning districts or districts that are consistent with the property's current use, as well as consideration of additional commercial zoning, should be evaluated in conjunction with the creation of the County's Economic Development Strategic Plan.

Analysis of subdivision growth has shown favorable results since the adoption of sliding scale zoning in 1980. If sliding scale zoning, in conjunction with the goals expressed in the Comprehensive Plan, continues to prove successful, modest population changes will result in the future. Based upon current projections, the population of Clarke County could reach 15,560 residents by the year 2035. Total population growth may not be significantly altered by the current policies, but growth will continue to be directed to the Towns and designated growth areas as outlined in the Comprehensive Plan. This effect will become more pronounced as dwelling unit rights are used up in the rural portions of the County.

I. PUBLIC INFRASTRUCTURE AND SERVICES

This section provides a summary of the public infrastructure elements and services provided by the local government entities in Clarke County.

1. Water and Sewer

Public water and public sewer services are provided to the incorporated towns, business intersections, and some villages and unincorporated areas on a limited basis. Those areas not served by public water and public sewer rely on private groundwater wells and private onsite sewage disposal systems.

Town of Berryville Water and Sewer

The Town of Berryville is served by a surface water treatment facility located in the County with a raw water withdrawal from the Shenandoah River. The Berryville Water System provides approximately 1,600 residential and commercial service connections. The average daily water production is 380,000 gallons per day, with a permitted design capacity of 864,000 gallons per day. The combined water tank capacity for use by residents of the Town of Berryville is 3,500,000 gallons.

The Berryville Wastewater Treatment Facility is an advanced treatment Membrane Bioreactor utilizing two stage preliminary screening, grit removal, flow equalization, advanced activated biosolids treatment, 0.04 micron filtration, and ultraviolet disinfection. The design capacity is 0.7 MGD with a peaking factor of 2.1 MGD daily max hydraulic load. Solids management is handled by two rotary fan presses and biosolids are currently used for landfill reclamation by the Frederick County Landfill. This facility has been operating since September 2012 and consistently produces an effluent meeting stringent water quality criterion. This system is designed to handle the Town's needs for the next twenty plus years and is designed to expand as needed in the future to accommodate growth.

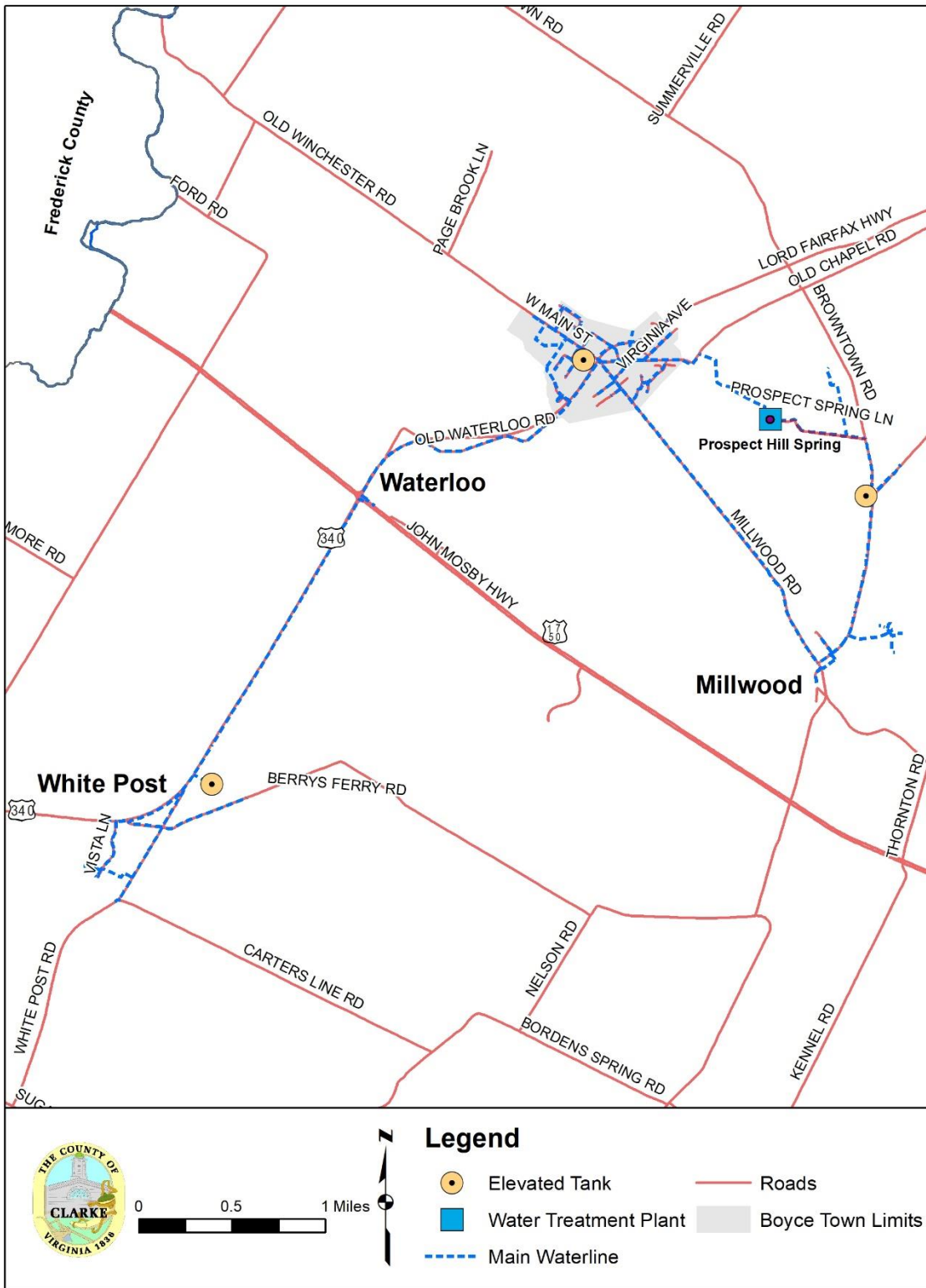
The Town's wastewater is conveyed to the treatment plant through a series of underground pipes and pumping stations. The collection system is also going through continual upgrades and repairs through regularly scheduled maintenance by the Town.

County Water and Sewer -- Clarke County Sanitary Authority

The Clarke County Sanitary Authority operates the public water and sewer systems that serve the Town of Boyce, the unincorporated village of Millwood, the unincorporated village of White Post (water only), and commercial-zoned properties at the Waterloo intersection (U.S. 50 and U.S. 340). The Authority is responsible for Prospect Hill Spring, the public water supply for approximately 400 households and businesses. The Authority is also responsible for the operations of the Boyce Sewage Treatment Facility located in the Town of Boyce. The Authority contracts with Imboden Environmental Services, Inc., as a consultant to assist with water and sewer system operations.

The Authority is governed by a five-member board that is appointed by the Board of Supervisors. Authority members serve four-year terms and one member is required to be a resident of the Town of Boyce.

Map 8, County Water Lines



Map 9, County Sewer Service District



Public Water and Sewer Expansion Efforts

In response to changes in ownership of the former State-owned property adjacent to the Double Tollgate Plan Area and requests from owners of property within the Plan Area, the County began efforts in 2021 to obtain public water and public sewer service from Frederick County. Clarke officials requested the Frederick County Board of Supervisors to authorize its authority, Frederick Water, to extend service to Double Tollgate and provide up to 150,000 gallons per day of water and sewer services. The Frederick Board voted to approve this authorization in October 2021. As of the drafting of this Plan, negotiations between Clarke County and Frederick Water remain in process.

Additional information on public water and public sewer may be found in the Water Resources Plan.

2. General Government -- County Administration

Clarke County is governed by a five-member board that is elected by the citizens to serve four year terms. The County's chief administrative officer is the County Administrator who serves at the pleasure of the Board and manages the County Administration Office.

The County Administration Office directs and supervises the day-to-day operations of all county departments and agencies that are under the direct control of the Board of Supervisors, pursuant to county ordinances and regulations. The Office also serves as the Board's official liaison to the constitutional officers, the judiciary, state and regional agencies. In addition, the Office provides administrative support to the Board of Supervisors, and the Office implements directives with regard to board agendas, meetings, resolutions, and constituent services.

The County Administration Office is the primary point of contact for citizens seeking information regarding county activities. Duties include responding to Freedom of Information Act requests, clerking various boards and commissions, and serving as the records custodian for various county documents. The Office also handles special event applications.

The County Administration Office provides human resources support for county employees, serves as the Conflict of Interest Officer for all boards, committees, and commissions, and answers the main county government phone.

The Berryville-Clarke County Government Center is shared with the Town of Berryville and the Clarke County Library. In addition to housing the County Administration Office and Board of Supervisors/Town Council meeting room, the following departments are also located in the Government Center:

County

- County Administration
- Department of Planning
- Commissioner of the Revenue
- County Treasurer
- Building Department
- Department of Fire, Emergency Medical Services, and Emergency Management
- Registrar
- Information Technology

Town of Berryville

- Town Manager's Office
- Planning
- Police Department
- Town Business Office

3. Law Enforcement, Public Safety Communications, and Animal Control

Law Enforcement -- County

The Clarke County Sheriff's Office (CCSO) provides law enforcement for the County's unincorporated areas and the Town of Boyce. Clarke County Sheriff's deputies patrol county roads, control traffic, investigate crimes, escort prisoners, provide courthouse and courtroom security, and serve legal documents. The Sheriff's Office is accredited by the Virginia Law Enforcement Professional Standards Commission, and it is a member of the Northwest Virginia Regional Drug and Gang Task Force. The Sheriff is a constitutional officer elected by the citizens for a four-year term.

The CCSO is located at 100 N. Church St. in Berryville.

Law Enforcement -- Town of Berryville

The Berryville Police Department provides law enforcement for the Town of Berryville. The Department also provides several community services such as fingerprinting of children for identification purposes, house checks while occupants are out of town for extended periods of time, youth substance abuse awareness and prevention programs, formation and organization of Neighborhood Watch programs, Child Safety Seat Installation/Inspection, bicycle safety and security programs and other public safety and security programs by special arrangement. The Department is led by the Chief of Police who is appointed by the Town Manager.

The Police Department is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville.

Town of Boyce

The Town of Boyce does not operate its own police department and relies on the Clarke County Sheriff's Office for law enforcement. The Town does employ a code enforcement officer to enforce various provisions of the Town Code.

Public Safety Communications

The Emergency Communications Center is responsible for around-the-clock dispatch of emergency (911) and non-emergency (540-955-1234) calls in the towns and county-wide. The Emergency Communications Center and Sheriff's Office maintain emergency contact information for owners of livestock (cattle, horses, sheep, etc.) so contact can be made in the event animals are reported running loose or injured. The Emergency Communications Center is located at 100 N. Church St. in Berryville.

Animal Control

Animal Control functions are operated as a partnership between the Clarke County Sheriff's Office and Clarke County Animal Shelter to ensure the health and safety of domestic animals, including livestock, within the County, Town of Berryville, and Town of Boyce.

The Clarke County Animal Shelter is managed by Clarke County but is owned by the Clarke County Humane Foundation, a 501(c)(3) corporation. It is located at 225 Ramsburg Lane in Berryville.

4. Fire, Rescue, and Emergency Management

Fire, Rescue, and Emergency Management

Clarke County operates a combined volunteer-career system which relies heavily on the efforts of trained volunteer firefighters and emergency medical technicians supported by paid personnel provided by the County. The County is served by three fire and rescue stations:

- John H. Enders Fire & Rescue Company located at 9 South Buckmarsh Street in Berryville
- Blue Ridge Volunteer Fire and Rescue Company at 131 Retreat Road adjacent to Shenandoah Retreat.
- Boyce Volunteer Fire Company located at 7 South Greenway Avenue in Boyce.

The Department of Fire, Emergency Medical Services (EMS) & Emergency Management coordinates all services of Clarke County's three volunteer fire and rescue companies as well as all emergency preparedness planning and response for the county. It manages paid EMS staff and the Fee for Service program. The Department oversees professional responses to fire, medical, and environmental emergencies. The Department is dedicated to minimizing the loss of life and property through fire suppression, rescue, education, and other programs.

The Department is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville.

5. Library

The Clarke County Library is a branch of the Handley Regional Library system and is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville. Access to the library and its resources are free to residents of Clarke and Frederick Counties and the City of Winchester. In addition to books, audio resources, and visual resources, the Library is equipped with public computers, WiFi access, and meeting rooms.

6. Schools

Clarke County Public Schools operates four public schools for grades K-12:

- D.G. Cooley Elementary School located at 240 Westwood Road in Berryville.
- Boyce Elementary School located at 119 West Main St. in Boyce.
- Johnson-Williams Middle School located at 200 Swan Ave. in Berryville.
- Clarke County High School located at 627 Mosby Blvd. in Berryville.

Clarke County Public Schools is overseen by the Clarke County School Board, a five-member board that is elected by the citizens of the County. Administrative offices are located at 317 West Main Street in Berryville.

7. Parks & Recreation (see Recreation Plan for non-County resources)

Clarke County Parks & Recreation Department

The Clarke County Parks & Recreation Department manages county-owned Chet Hobert Park, a 102-acre property west of Berryville. The park includes an outdoor swimming pool, 6 lighted outdoor tennis courts, 6 baseball-softball fields, 5 picnic shelters, 2 playgrounds, a 2-mile fitness trail, a dog park, and 13 soccer fields of various sizes. The Clarke County Recreation Center has exercise equipment, a gymnasium, meeting rooms, and kitchen. One room serves as the Clarke County Senior Center, offering programming and lunch for seniors four days each week. The Department offers a wide variety of activities and programs for people of all ages.

Chet Hobert Park and the Clarke County Recreation Center are located at 225 Al Smith Circle in Berryville.

Clarke County Public Schools Facilities

Clarke County Public Schools operate a number of active recreation facilities used primarily for school athletics but also for limited use by the public. This includes a football/soccer stadium, baseball/softball fields, track, playgrounds, and indoor/outdoor basketball (limited access).

Town of Berryville

The Town of Berryville owns and maintains the three-acre Rose Hill Park in the heart of downtown Berryville. Rose Hill Park provides a great place for families to relax and enjoy a peaceful outing. Park facilities include a playground designed for younger citizens, basketball courts, and a gazebo.

Kohn property

The Kohn property is a currently undeveloped site located off Ebenezer Road that was gifted to the County. This property consists of 50 acres of mountain woodlands that was placed in conservation easement with the County by the owner. The deed of easement specifies the intended use for environmental education, passive recreation, and bird/wildlife watching. As a county facility, the Parks and Recreation Department and Advisory Board is tasked with developing a master plan for this facility.

The Recreation Component Plan contains additional information on the County's active and passive recreational resources.

8. Health and Human Services

Department of Social Services

Clarke County Department of Social Services (CCDSS) is the local administered office of the Virginia Department of Social Services. CCDSS administers Child Protective Services, In-Home and Prevention Services, Foster Care, Fostering Futures, and Adoption for families and children. CCDSS also provides Adult Protective Services and Adult Services for the elderly and disabled. In addition to services programs, Clarke County Department of Social Services administers benefit programs such as

the Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps), Medicaid, Temporary Assistance for Needy Families (TANF), Child Care Subsidy, Employment Assistance, and Energy Assistance programs.

CCDSS offices are located at 311 East Main Street in Berryville.

Virginia Department of Health

The Clarke County Health Department — part of the Virginia Department of Health — is within the Lord Fairfax Health District, which serves the Northern Shenandoah Valley. The Health Department administers clinical services, environmental health services, and the Woman Infants and Children’s Program (WIC).

The Virginia Department of Health Clarke County currently leases office space located at 100 North Buckmarsh Street in Berryville.

Northwestern Community Services

Northwestern Community Services (NWCS) offers an array of outpatient, case management, day support, residential and emergency programs that are designed to enhance the quality of life for both children and adults affected by emotional/behavioral disorders, mental illness, substance use, and intellectual disabilities and developmental disabilities (ID/DD). NWCS specializes in rehabilitative and family support services for individuals with such long-term challenges as schizophrenia, bipolar disorder, major depression, addiction, and those with significant impairments from ID/DD. NWCS also provides 24-hour emergency evaluation, short-term treatment and hospital referral to individuals having mental health, emotional, substance use, or behavioral crises that pose a safety risk to themselves or others.

Northwestern operates several facilities throughout the northern Shenandoah Valley. The Clarke County clinic is located at 309 West Main Street in Berryville. This clinic provides services for adults and children, including Mental Health Case Management and Medication Management.

9. Joint Administrative Services

Joint Administrative Services (JAS) was developed in a unique partnership between the Clarke County Board of Supervisors and the Clarke County School Board to share the costs and resources of certain common governmental functions. JAS is charged with managing the following day-to-day functions for both the County and Schools that would ordinarily be managed by separate departments:

- Budgeting
- Accounts payable
- Payroll
- Purchasing
- Risk management

JAS is overseen by a five-member appointed board which includes one School Board representative and one Board of Supervisors representative. JAS offices are located at 317 W. Main St. in Berryville.

10. Transportation

Public roads in Clarke County – both primary and secondary -- are maintained by the Virginia Department of Transportation (VDOT). Secondary roads in the Town of Berryville are maintained by the Town while Main Street (Va. Route 7) and Buckmarsh Street (U.S. 340) are maintained by VDOT.

The Town of Boyce maintains several private streets located within its jurisdiction. Maintenance of all private roads in the County are the sole responsibility of the property owners.

The Transportation Plan contains additional information about the County's road network and priority transportation improvement projects.

CHAPTER II

Goals, Objectives, and Policies

- 1. Agriculture**
- 2. Mountain Resources**
- 3. Natural Resources**
- 4. Historic Resources**
- 5. Conservation Easements**
- 6. Outdoor Recreational Resources**
- 7. Energy Conservation and Sustainability**
- 8. Village Plans (Millwood, Pine Grove, White Post)**
- 9. Designated Growth Areas for Development**
- 10. Economic Development**
- 11. Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility**
- 12. Transportation**
- 13. Broadband Internet Access**

GOALS

The goals for land use planning in Clarke County are to:

1. Preserve and protect the agricultural, natural, and open-space character of unincorporated areas.
2. Focus development within designated planning areas including incorporated towns and established village and commercial areas, utilizing design elements that balance compatibility with each community's needs and unique character.
3. Encourage and maintain a diverse and viable local economy compatible with the County's size and character.
4. Exercise stewardship over resources so as to reduce the consumption of nonrenewable resources, utilizing renewable energy whenever possible; and foster within the private sector of the County a culture of resource conservation.
5. Provide for the economical delivery of necessary public services in conformance with the Comprehensive Plan and its implementing component plans.
6. Prevent significant degradation of natural resources. "Significant degradation" is a measurable negative reduction in the quality or quantity of a natural resource.
7. Understand that policy decisions are precedent-setting and ensure that all such decisions are carefully and thoughtfully examined to determine their consistency with the Comprehensive Plan, the implementing component plans, and with the County's land use philosophy.

OBJECTIVES

Objective 1 -- Agriculture.

Encourage agricultural operations and productivity to ensure the preservation and availability of land for the continued production of crops and livestock through the following policies and the Agricultural Land Plan. Ensure that any limited residential, commercial, and other non-agricultural uses and activities do not result in significant degradation to natural resources or disrupt the character and functionality of agricultural areas.

Policies

1. Promote and protect agriculture as the primary use of land in rural areas and inform the public of benefits of this policy.
2. Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with

individual agricultural interests within the County and with advocacy agencies, and liaisons with counties in the area that have similar development programs.

3. Utilize the Agricultural Land Evaluation and Site Assessment (LESA) System to assess accurately the suitability of land for continued agricultural use. The LESA system provides an objective evaluation tool that scores the soils and physical conditions of a parcel for agricultural use.

4. Make land use decisions and plans that are consistent with LESA ratings. Approve conversion of important farmland to nonfarm use only if a significant overriding public need exists to change the land use. Important farmland consists of soils that are best suited to food, feed, fiber, forage, and oilseed crops and includes areas containing:

- Prime farmland
- Farmland of statewide importance
- Farmland of local importance
- Unique farmland

Adopt regulations to limit future development in these important farmland areas in order to maximize the amount of land available for agricultural production.

5. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality by the following methods:

- a. Making technical assistance available.
- b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, storm water management and Chesapeake Bay Preservation Regulations.
- c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
- d. Encouraging all landowners engaged in agricultural activities to use the assistance of the Virginia Cooperative Extension Service, the Natural Resource Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.

6. Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with agricultural activities in the area of the county west of the Shenandoah River. Such residential development shall be consistent with the County's sliding-scale zoning regulations and shall not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation. Prohibit the rezoning of Agricultural-Open Space-Conservation (AOC) zoned properties to the Rural

Residential District (RR) in areas outside of designated growth areas and villages for new residential development. The purpose is to avoid loss of farmland, to avoid sprawl development, and to avoid consumption of potential conservation lands and open space.

7. To the maximum extent possible, separate nonagricultural land uses from existing agricultural lands and operations. Where nonagricultural operations are adjacent to existing agricultural operations, the nonagricultural operations should provide buffering in the form of fencing, landscaping, and open space. Require a right-to-farm warning notice to be included within the deed of dedication for new subdivisions in agricultural-zoned areas to promote awareness of living within an agricultural community.
8. With the exception of telecommunication and high-speed internet facilities, discourage extension of public utilities, including but not limited to public water and public sewer, and other growth-inducing public facilities into agricultural areas and land under permanent conservation easement.
9. Encourage all government agencies to consider the impacts that their programs and projects may have on maintaining the availability and use of agricultural land. Encourage them to eliminate or minimize adverse impacts.
10. Promote and support the renewal and expansion of the Clarke County Agricultural and Forestal District program by providing information on its benefits and incentives to associated farmland owners, timberland owners, and farm organizations. Use the Land Evaluation and Site Assessment (LESA) System for the objective and consistent evaluation of applications for additions to the Clarke County Agricultural District.
11. Support use-value taxation and other fiscal programs that help to alleviate economic burdens on owners of land used for agricultural, horticultural, forest, or open-space purposes (Code of Virginia, Section 58.1-3230, as amended). Promote existing and explore alternative strategies to protect agricultural land from escalating assessments as a result of development pressures.
12. Evaluate and consider implementing innovative land-conserving techniques as authorized by State law.
13. Agribusiness uses and activities are encouraged provided that:
 - a. They are compatible in scale to and intensity with surrounding agricultural uses.
 - b. They pose no threat to public health, safety, and welfare.
 - c. They further the goal of preserving farmland, open space, and the County's scenic beauty and historic resources.
 - d. They do not result in significant degradation of natural resources.

14. Agritourism uses and activities are encouraged as a means of facilitating the onsite sale of farm products and promoting agricultural education and appreciation. All agritourism activities shall be incidental to and directly supportive of the primary agricultural use on the property. Any agritourism activities or uses that exceed the intensity of the primary agricultural use shall either be prohibited or be approved by special use or other governing body permitting action.

Objective 2 – Mountain Resources.

Preserve the natural beauty and protect the ecology of lands located east of the Shenandoah River to ensure that development in those areas is in conformance with their environmental limitations through the following policies. Applicable policies are found in this Objective, Objective 3 (Natural Resources), and the Mountain Land Plan. Recognize that the wooded and steep landscape of the mountain areas poses unique challenges to development and that regulations should be developed to address these characteristics.

Policies

1. Collaborate with agencies, organizations, and surrounding counties to develop plans and strategies to mitigate transportation, development, and other current and future impacts on mountain lands.
2. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality through the following methods:
 - a. Making technical assistance available.
 - b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, stormwater management and Chesapeake Bay Preservation Regulations.
 - c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
 - d. Encouraging the participation of all landowners engaged in forestal activities to use the assistance of the Virginia Department of Forestry, the Natural Resources Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.
 - e. Supporting these and other innovative efforts to ensure continued water quality improvements in the future.
3. Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with agricultural and forestal activities in the area of the county east of the Shenandoah River. Such residential development shall be consistent with the County's

sliding-scale zoning regulations, and shall not involve rezoning to a higher residential density to exceed the parcel's dwelling unit right allocation. Regulations for residential development shall include the following characteristics.

- a. Shall be on a minimum area sufficient to provide proper placement of a dwelling, related accessory structures, well, and septic systems.
 - b. Shall not be located on steep slopes or areas with slippage soils.
 - c. Shall avoid ridgelines to the maximum extent practicable when developing a lot unless a ridgeline building site would produce the lowest potential for adverse environmental impacts and natural resource degradation.
 - d. Shall recognize the fragile nature of the soils and slopes, understanding that trees protect these features from erosion and clearing should be limited. Forestry best management practices and other acceptable measures shall be used during construction and afterwards to reduce erosion, preserve trees, and maintain the scenic beauty of mountain areas.
 - e. Shall be compatible with the natural features of that land and shall not diminish natural and scenic assets.
 - f. Shall respect environmental limitations and protect natural features during and after the development process.
4. Prohibit the rezoning of Forestal-Open Space-Conservation (FOC) zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages for new residential development. The purpose is to avoid loss of forest, to avoid sprawl development, and to avoid consumption of potential conservation lands and open space.
 5. Promote the protection of lands adjoining or visible from the Appalachian National Scenic Trail, the Shenandoah River, and other public lands. Protect the scenic value of those lands when making land use decisions and plans.
 6. Work proactively with the Mount Weather Emergency Operations Center and the Federal Emergency Management Agency (FEMA) to encourage compatible development, public notice, and public input opportunities for future expansion projects as well as continued communication and cooperation.

Objective 3 – Natural Resources.

Protect natural resources, including but not limited to soil, water, air, viewsheds, night sky, wildlife habitats, and fragile ecosystems through the following policies, the Water Resources Plan, and other adopted policies.

Policies

1. Prohibit land uses that are likely to result in significant degradation to the County’s natural resources. Focus should be placed on but not be limited to ground and surface water quality and quantity in Karst topography, steep slopes, and the Shenandoah River. Regulations should be adopted to establish measurable thresholds that the County uses to determine what constitutes significant degradation of a natural resource.
2. Ensure that adverse environmental impacts of activities directly or indirectly related to construction are minimized. Require effective mitigation when impacts occur including but not limited to tree and vegetation removal, drainage-way alteration, and grading and filling. Provide for effective, proactive enforcement when necessary to prevent substantial damage to natural resources and adjacent properties.
3. Manage and protect floodplains by the following methods:
 - a. Limiting structures, uses, and activities in the 100 year floodplain that cause sedimentation, harm to property and water quality, and other adverse impacts due to the risk of floating debris and bank erosion.
 - b. Enforcing floodplain management regulations so that residents continue to be eligible for flood insurance under the National Flood Insurance Program.
 - c. Prohibiting installation of drain fields in the 10 year floodway.
 - d. Discouraging the use of drain fields within the 100 year floodplain.
4. Recognizing that the Shenandoah River is a state-designated Scenic River and is one of the County's significant environmental and recreational resources, provide for its protection by the following methods:
 - a. Cooperating with state agencies in developing a river corridor management plan.
 - b. Limiting development within the River’s 100-year floodplain.
 - c. Promoting the placement of conservation easements on lands within view from the River to protect the scenic value of those lands when land use decisions and plans are made.

- d. Promoting efforts to reduce bank erosion, limiting the impact of new or expanded private river accesses (e.g, docks and ramps), protecting canoeists and other recreational users, and minimizing noise levels.
 - e. Considering participation in a regional Shenandoah State Scenic River Advisory Board and/or establishing a local board or committee to provide guidance and develop programs to protect and enhance the river’s scenic beauty.
 - f. Promoting awareness of public parking areas and access points to encourage usage of these resources and as a means of discouraging roadside parking and unauthorized river access points.
5. Apply best management practices to protect local and regional water resources and environmentally sensitive areas such as the Shenandoah River, Opequon Creek, perennial streams, floodplains, wetlands, steep slopes, slippage soils, and highly erodible soils. Establish specific water quality performance guidelines to include Chesapeake Bay Resource Protection and Resource Management Areas when considering land use and development related activities.
 6. Identify and inventory environmentally significant land suitable for the preservation and conservation of natural resources. Encourage landowners to apply for preservation programs such as the Agricultural and Forestal District program (AFD) as well as applicable use-value taxation for such lands as "real estate devoted to open space use" (Code of Virginia, Section 58.1-3230). Such real estate includes parcels adjacent to designated scenic rivers, wetlands, designated scenic highways, and registered historic structures. Such real estate also includes lands adjacent to or under permanent conservation easement or lying within the 100-year floodplain.
 7. Prohibit new or expanded mining, oil, or gas-drilling operations.
 8. Promote the placement of conservation easements on lands adjoining or visible from roads designated as Scenic Byways and protect the scenic value of those lands when making land use decisions and plans.
 9. Promote the concept of linear greenways to link natural features, wildlife corridors, and cultural and scenic resources such as:
 - Designated scenic rivers
 - Designated scenic highways
 - Registered historic properties
 - Permanent conservation easements
 - Recreation facilities
 - Blandy Experimental Farm

- Shenandoah University's Shenandoah River Campus
 - Appalachian Trail
10. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, to protect natural resources important for preserving soils, watersheds, water quality, scenery, natural habitats, and air quality.
 11. In response to requests for rezoning land for more intensive use in designated growth areas, encourage applicants to proffer the placement of permanent conservation easements on important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat lands.
 12. Ensure that the natural and/or cultural features of properties held in recorded Conservation Easements and state designated scenic rivers are protected when reviewing land use applications on adjacent properties.
 13. Support watershed management planning for each perennial stream and consider any watershed management plan as a factor in making land use decisions.
 14. Take all appropriate steps to protect public water sources, such as the Shenandoah River serving the Town of Berryville, and the Prospect Hill Spring serving the Town of Boyce and the communities of Millwood, Waterloo, and White Post.
 15. Support Shenandoah Basin regional water planning efforts including creation of surface water management areas, and programs to study and address low flow issues. Oppose efforts to establish new interbasin transfers within the Shenandoah River watershed.
 16. Utilize USGS Groundwater Study findings when evaluating proposed changes in land use and continue to support ongoing water resource monitoring efforts. Establish and maintain a long term water quality monitoring network and real-time water quantity monitoring network, in cooperation with the USGS, to track changes and better assess impacts to our water resources.
 17. Revise and implement the adopted County ordinance requiring pump out of septic systems per State requirements.
 18. Recognize that because karst terrane underlies the majority of Clarke County, groundwater in the County is highly susceptible to contamination. Take steps to protect groundwater and prevent contamination whenever possible.
 19. Adopt the most stringent regulations for alternative onsite sewage treatment systems permitted by State law to protect the County's vulnerable surface and groundwater resources. Implement an onsite treatment system monitoring program including enforcement of mandatory pump-out requirements for septic systems as described in Policy #17 above. For new development and re-development projects that require a land

use change, ensure use of the onsite sewage treatment method that provides the maximum protection to surface/groundwater resources and Karst terrane.

20. Promote multiple uses of forested land that are nonintensive and compatible, such as passive outdoor recreation, wildlife habitats, watershed protection, and forest management.
21. Ensure that timber harvesting is conducted in accordance with Virginia Department of Forestry and Chesapeake Bay protection standards. Also ensure that an approved forest management plan is in place for each site so that erosion and sedimentation of streams and other applicable impacts are minimized.
22. Promote the addition of forestal lands to the Clarke County Agricultural and Forestal District program by providing information on the program's benefits and incentives to owners of timber lands.

Objective 4 – Historic Resources

Preserve the County's historic character by protecting its historical and cultural resources for the aesthetic, social, and educational benefits of present and future citizens through the following policies and the Historic Resources Plan.

Policies

1. Develop innovative ways to protect and promote the economic and cultural importance of historic and archaeological resources.
2. Encourage and assist property owners to pursue State and National Register designation, either individually or through thematic nominations.
3. Encourage and assist property owners to place voluntary conservation easements on lands associated with historic buildings, sites, districts, and archaeological resources representing all historical time periods and cultures present in the County.
4. Encourage adaptive reuse of historic structures and properties that conforms to the County's Comprehensive Plan, regulations, and infrastructure capacity.
5. Establish and protect state and national historic districts, especially in rural areas, to recognize officially their historical significance and value.
6. Support the establishment of County historic overlay zoning districts to protect recognized properties and areas of historic and archaeological value and to ensure that new nonresidential development along access corridors leading to historic areas will be compatible and harmonious with such historic areas.

7. Ensure that proposed development in County historic overlay zoning districts is compatible with the historic, architectural, landscape, or archaeological attributes of nearby or adjoining properties, neighborhoods, and districts, and that archaeological resources on the development site are not disturbed. Encourage proposed development outside of these overlay districts to be compatible with and protect the scenic values of nearby historic resources or the scenic values of land associated with these resources.
8. Consider potential impacts to historic/archaeological resources when reviewing land-use decisions, such as rezoning, site plan, and subdivision requests.
9. Review and update the current “Clarke County Archaeological Assessment: Historical Character of the Lower Shenandoah Valley” and include more specific recommendations to ensure protection of archaeological resources.
10. Promote community awareness and public education of historic preservation including tax incentives, designation procedures, design guidelines, and appropriate rehabilitation guidelines. Support the creation of literature on the historic resources of the County to acquaint the general public, and in particular new residents, with the County's rich cultural heritage. These activities should have the objective of informing property owners and residents of the value that historic preservation adds to their properties and community.
11. Incorporate historic resources in comprehensive efforts to promote tourism in the County by aiding in the development of a promotional brochure, a local historic-plaque program, and self-guided tours.
12. Continue to map 18th- and 19th-century road traces and make the information available to the public.
13. Investigate solutions to address the issue of “demolition by neglect.” Encourage property owners to protect their historic structures through public education initiatives, cooperative efforts, and regulatory tools provided by State law.
14. Continue to support the research and documentation of the history of Clarke County, including but not limited to Native Americans and African-Americans and their contribution to the history of the County.
15. Encourage owners of eligible properties to convey historic preservation easements as a tool for protecting these properties.

Objective 5 – Conservation Easements

Ensure the continued success of the Conservation Easement program by encouraging landowners to place County lands in voluntary permanent easement. Provide support and funding of the County’s Conservation Easement program and collaborate with other easement programs managed by State, Federal, and private entities.

1. Encourage and facilitate the donation of conservation easements on land that meets the criteria of the U.S. Internal Revenue Service for easement donation and that is identified as having important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat qualities. Such easements should also be consistent with the Comprehensive Plan and implementing component plans.
2. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, in order to fund easement purchases on land with significant conservation value that are owned by individuals with low to moderate income.
3. Encourage and support the goals of the Conservation Easement Program to protect and preserve:
 - a. Land essential to agriculture including land with soils classified by the Natural Resources Conservation Service (NRCS) as prime farmland, farmland of statewide importance, farmland of local importance, and unique farmland as soils that are best suited to food, feed, fiber, forage, and oilseed crops.
 - b. Forested areas for their value as natural habitat and recreation, ability to enhance air and water quality, and ability to prevent soil erosion.
 - c. Historic resources, to maintain community character and identity, and encourage the tourism industry.
 - d. All water resources with particular emphasis on land adjacent to the Shenandoah River and other perennial streams and the limestone ridge/groundwater recharge area to protect water quantity and quality (reference Map 3, Groundwater Recharge Area).
 - e. Land adjacent to the Appalachian Trail and other public lands.
 - f. Land with environmentally sensitive areas important to air and water quality, plant life, and wildlife.
 - g. Lands that provide viewsheds for the County’s gateways, main roads, and scenic byways.

4. Continue to support efforts pertaining to public education and outreach to expand the understanding and benefits of conservation easements.
5. Continue to support efforts to secure grant funding to purchase new easements and to promote stewardship of existing easements.
6. Support efforts by County staff to monitor and, where necessary, enforce County conservation easement agreements with landowners.

Objective 6 – Outdoor Recreational Resources

Promote and protect the County’s outdoor recreational resources to ensure ongoing, diverse active and passive recreational opportunities for residents and visitors to the County.

1. Maintain the Recreation Plan as an implementing component plan containing specific strategies pertaining to the County’s Parks and Recreation program. Support and protect the County’s local, state, Federal, and other publicly-accessible active and passive outdoor recreational resources.
2. Provide a variety of recreational opportunities for citizens throughout Clarke County that are fiscally responsible, compatible with the County’s land use philosophy, and meet the changing needs of the community. Seek opportunities to partner with other jurisdictions, agencies, and the private sector to fund, develop, and expand recreational resources.
3. Promote the concept of linear greenways to link natural features, wildlife corridors, and cultural and scenic resources, such as:
 - Designated scenic rivers
 - Designated scenic highways
 - Registered historic properties
 - Permanent conservation easements
 - Recreation facilities
 - Blandy Experimental Farm
 - Shenandoah University’s Shenandoah River Campus
 - Appalachian Trail
4. Study and implement strategies to manage the current and future recreational use of the Shenandoah River corridor.

Objective 7 – Energy Conservation and Sustainability

Encourage sustainable development by promoting renewable energy, energy conservation, and preservation of natural resources within the context of the County’s land use philosophy. Ensure that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

Policies

1. Promote energy efficiency to the maximum extent economically feasible when making decisions affecting County operations. Adopt economically feasible measures to reduce resource use including maximizing energy use efficiency, and when purchasing, recycling, and disposing of products. Conduct regularly scheduled audits of County facilities to ensure energy efficiency.
2. Encourage the use of active and passive renewable energy systems. Develop policies that address potential impact of such systems on scenic viewsheds, agricultural and natural resources, and historic resources (e.g., windmills and solar panels).
3. Encourage reusing and recycling materials, including a recycling program. Facilitate access to public recycling facilities.
4. Encourage a regional reduction in single occupant vehicles (SOVs) through mechanisms such as ridesharing, public transit, carpools, and bicycle/pedestrian accommodations. Identify locations for commuter and ridesharing lots to serve Clarke County residents and explore fee systems to recoup costs from non-County users.
5. Adopt economically feasible measures to maximize energy efficiency in the siting and design of new and refurbished public buildings, schools, and other public facilities. Establish policies that require new or renovated public buildings to be designed to meet a nationally recognized energy and environmental standard such as Leadership in Energy and Environmental Design (LEED) or Earthcraft.
6. Encourage use of Low Impact Development (LID) techniques that help manage stormwater in an environmentally sensitive manner.
7. Establish water quality performance standards that include retention of vegetation, minimal site disturbance, and reduction of nutrients and sediment in post-development stormwater.
8. Coordinate with the Town of Berryville, the Town of Boyce, and the Clarke County School District on joint sustainable community practices such as energy efficiency and alternative transportation.
9. Encourage the use of cisterns and other water reuse applications in new residential and commercial developments.

10. Maintain and periodically update the Energy and Resource Management Plan (dated 4/20/2010). Investigate tax credit programs that encourage energy conservation by residents and businesses.

Objective 8 – Village Plans (Millwood, Pine Grove, White Post)

Enhance the identity and appearance of established villages, such as Millwood, Pine Grove, and White Post.

Policies

1. Develop a new Village Plan as an implementing component plan that provides planning and economic development strategies for the designated villages.
2. Protect private and public water sources serving these areas.
3. Protect the cultural and economic identity of these communities.
4. Encourage the preservation, renovation, and restoration of existing structures.
5. Encourage economic development and revitalization of these communities through innovative uses of new and existing structures.
6. Encourage upgrading of existing substandard housing in these communities.
7. Promote projects that preserve or enhance the historic characteristics of each village.

Objective 9 – Designated Growth Areas for Development

Encourage business and residential development in designated growth areas to implement the principles of:

- Preserving open space, farmland, natural beauty, cultural features, and critical environmental areas, and
- Improving the quality of life and services in existing towns and directing development towards these existing towns.

Provide for nonresidential business development at the intersections of two or more federally-designated primary highways (U.S. Routes 50/17 and 340 and U.S. Routes 340 and 522) through the following policies, the Berryville Area Plan, the Waterloo Area Plan, and the Double Tollgate Area Plan.

Policies

1. Continue to designate the Town of Berryville and certain areas adjacent to the Town as the Berryville Annexation Area. The Berryville Area Plan defines the boundaries and

uses for this growth area. The boundaries of the adopted Berryville Area Plan should not be expanded until the land area addressed by the Plan is substantially developed.

- a. Direct urban and suburban uses that require water and sewer service, including residential, commercial, and light industrial development, to this growth area where they can be served conveniently and economically by available public facilities and services. These uses include schools, parks, water and sanitary sewer, storm-water drainage, roads, police, fire, and emergency services.
 - b. In this growth area, encourage the construction, rehabilitation, and maintenance of affordable housing, meeting the needs of current and future households with incomes at or below the County median as planned for in the Berryville Area Plan and Town of Berryville Comprehensive Plan.
2. Work in concert with the Town of Berryville to ensure the Berryville Area Plan and applicable regulations produce development that reflects the shared vision of the Town and County.
 3. Continue to coordinate and cooperate with the Towns of Berryville and Boyce to implement effective policies to provide for residential and business development compatible with the established character of these towns as reflected in their comprehensive plans.
 4. Promote business activities at Waterloo (U.S. Routes 50/17 and 340) through provision of public water and sewer services and provision of areas zoned for business uses. Maintain the Waterloo Area Plan to identify:
 - a. The specific boundaries and mixes of uses,
 - b. The way public services are to be provided, and
 - c. The way proposed activities will be integrated with surrounding uses, especially agricultural, residential, and parcels held in permanent conservation easement. The boundary of the adopted Waterloo Area Plan should not be expanded until the land area addressed by the Plan is substantially developed, and the Plan should be periodically reviewed and updated.
 5. Evaluate the Double Tollgate Business Intersection Area at U.S. Routes 340 and 522 (as designated in the Double Tollgate Business Intersection Area Plan) for potential County investment in infrastructure to support existing business growth and new business development. County infrastructure investment should be subject to the following strategies:
 - a. Development of public water and public sewer should be in partnership with property owners, local governments, and applicable State agencies which may

require public infrastructure to serve the adjacent State-owned property formerly known as Camp 7.

- b. The County, in partnership with applicable stakeholders, should explore all possible approaches to serve the Business Intersection Area with public water and public sewer before giving any consideration to extending the existing County utility systems.
 - c. Property owners who develop their properties in this business intersection area shall be solely responsible for the cost and construction of public road improvements required as a result of their development. The County may consider partnerships to pursue funding for construction of necessary intersection-wide improvements.
 - d. The County should help facilitate business-class broadband availability in this development area using the applicable policies of Objective 13, Broadband Internet Access.
6. The Double Tollgate Area Plan should be maintained and periodically updated to identify the specific boundaries and mixes of uses; the way public services are to be provided as described in Policy #5 above; and the way proposed activities will be integrated with surrounding uses, especially agricultural uses, residential uses, and lots held in permanent conservation easement. The Area Plan should also address:
- The relationship between and potential development integration of the current Business Intersection Area and adjoining properties owned by the Commonwealth of Virginia (formerly known as the Camp 7 property).
 - Creation of zoning requirements, design criteria, or other regulations to address the unique characteristics of this designated development area.
 - Potential future expansion of the Business Intersection Area to accommodate future commercial growth and economic development subject to the County's capacity to serve with public infrastructure.
7. Ensure that land-use decisions do not allow urban and suburban forms of development to occur in designated growth areas unless public facilities and services commensurate with such development either are available or are programmed with a plan for cost recovery. Cost recovery includes but is not limited to direct contribution by the development community or increased tax revenue generated by the new development.
8. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by federal TMDL program to improve water quality and minimize runoff impacts that could be caused by development of the Berryville Annexation Area and at primary highway intersections.

9. Consider developing levels of service for public facilities including public water, public sewer, roads, schools, and parks to ensure that the County is capable of providing adequate services to support existing and new development.
10. Consider the planning goals, principles, and policies of incorporated towns in designating growth areas. Make provisions for public utility services, and, where feasible, undertake joint or coordinated action with town governments, independent county authorities, and other regional entities.

Objective 10 – Economic Development

Encourage economic growth that is compatible with the County's environmental quality, rural character, and residential neighborhoods, and that provides a healthy balance between revenues from residential and agricultural uses, and those from commercial and industrial uses.

Policies

1. Establish and maintain an Economic Development Strategic Plan as an action-oriented plan to implement the recommended strategies of this Objective 10. Ensure that the Strategic Plan's recommendations and action items are fully consistent with Objective 10 and all other applicable goals and objectives of the Comprehensive Plan.
2. Direct the location of compatible businesses to designated growth areas and existing commercial centers as allowed by the adopted plans for those areas.
3. Encourage new or expanded businesses that have minimal impact on the County's sensitive environment and that do not adversely impact surrounding properties with excessive noise, odor, or light pollution.
4. Ordinances and policies should be implemented to ensure high-quality design and construction of new and redeveloped businesses.
5. Promote economic development within incorporated towns and designated business intersections that is consistent with the County's land use philosophy and character. Focus on types of businesses that can be served with public infrastructure (e.g., roads, public water, public sewer, natural gas, broadband) in an effective and fiscally-responsible manner and with minimal adverse impact to surrounding properties.
6. Promote economic development in the County's unincorporated and rural areas that is highly compatible with the County's land use philosophy and character. Focus on types of businesses that will not produce impacts which may result in significant degradation of natural resources, that will not require or increase demand for public infrastructure improvements or expansion, and that will not adversely impact existing nearby land uses or the conservation value of protected lands. These business sectors include but are not limited to agricultural operations, agricultural support businesses, and equine businesses and related services.

Other business sectors which may be compatible on a limited scale subject to compliance with building code regulations, onsite sewage disposal system requirements, and County zoning regulations include:

- a. Small-scale lodging within single-family dwellings and/or accessory dwellings.
 - b. Limited special events and commercial public assembly uses subject to full compliance with County regulations governing such activities.
 - c. Support businesses for existing tourism resources.
 - d. Adaptive reuse of existing commercial and residential structures to compatible new uses.
7. Protect and enhance the environmental resources of the County, recognizing that they can serve as an attraction to business and industry.
 8. Encourage the attraction of business activities that complement or that work in conjunction with existing industrial and commercial activities in the County, particularly active farming and forestry operations.
 9. Ensure that new commercial development occurs according to the following provisions:
 - a. Does not degrade the level of service of the existing transportation network to unacceptable levels for safety, congestion, and functionality.
 - b. Ensures that access to and impacts on the transportation network are safe and do not impede traffic flow for emergency vehicles.
 - c. Meets all applicable zoning and building code regulations and all standards for water, sewage disposal, and waste disposal needs.
 10. Evaluation of rezoning, conditional zoning, and special use permit applications for adaptive reuse projects and projects to redevelop existing agricultural, commercial, and light industrial uses shall include the following elements in addition to the criteria set forth in Policy #9 above for new development projects:
 - a. Whether the project is in general accord with the Comprehensive Plan.
 - b. Whether there is consistency with prior land use decisions involving similar cases.
 - c. Whether the resultant structures, parking, lighting, landscaping, stormwater management, onsite well and septic systems, property ingress/egress, and other site elements would be in full compliance with County land use ordinances and State regulations.

- d. Whether the project mitigates an existing public safety concern.
 - e. Whether the project mitigates any new impact to the existing character of the area including but not limited to noise, odor, intensity, or aesthetics.
 - f. In the case of a conditional zoning application, whether the applicant's proffer package addresses all existing and potential site impacts to surrounding properties.
11. Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with individual agricultural interests within the County and advocacy agencies, and establishes liaisons with counties in the area that have similar development programs.
 12. Seek and consider additional fiscal tools by which the County may enhance its tax base.
 13. Promote the retention, attraction, and expansion of businesses and industries that support the land use goals of the County, in particular, businesses that generate a relatively high level of local tax revenue in relation to the number of jobs, create minimal impact on public services, and are compatible with the County's agricultural and natural resources.
 14. Facilitate business-class broadband availability using the applicable policies of Objective 13, Broadband Internet Access.

Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility

Ensure the provision of capital improvements in a manner consistent with the land-use objectives of the County through the following policies and the Capital Improvement Program.

1. Maintain an annual Capital Improvement Planning process that evaluates the need for capital projects via established performance triggers and degree of conformance of each project with the Comprehensive Plan and implementing component plans. Also develop a means of consistent, objective, and accurate fiscal impact analysis for use in evaluating capital projects.
2. Encourage the development of level of service criteria, needs assessments, and other performance triggers to plan for capital improvements in advance of the actual need. Ensure that assessments and criteria are based on standards that are accepted by the relevant industry and that they are evaluated and updated on a regular basis by the managing department.
3. Prohibit the extension of capital improvements into areas not designated for growth in the Comprehensive Plan that would be subjected to increased development pressures by such extensions. Such improvements would include public water, public sewer, schools, and

public facilities but would not include passive recreational resources and high-speed internet facilities.

4. Carefully assess the short- and long-range fiscal impacts of necessary capital improvements, such as roads, schools, and water and sewer service when land-use decisions and plans are made.
5. Provide funding for school facilities that will enable the School Board to achieve its priorities within the County's fiscal capabilities. Ensure that the School Board's goals and needs and the County's ability to fund projects are compatible and are discussed jointly on a regular basis.
6. Ensure that the County's facilities are located, designed, and constructed to maximize public convenience and accessibility. New construction should, where economically feasible, maximize use of existing facilities. Available technology should be reviewed and, where possible, technological improvements should be used to minimize the need for additional space.
7. Ensure that sheriff, fire, rescue, and emergency management provide the highest level of citizen protection within the fiscal resources of the County. Work with these agencies and departments to ensure that performance measures are established to effectively plan for future capital, personnel, and equipment needs.
8. Provide or permit Waterworks and Sewerage System & Treatment Works as regulated by the Clarke County Zoning Ordinance only as described in the following policies, to ensure consistency with the previously stated land-use policies.
 - a. Coordinate with the Towns of Berryville and Boyce in their activities to provide Waterworks and/or Sewerage System & Treatment Works on land within Town limits and areas that the County agrees should be annexed to the Towns.
 - b. Provide septage treatment facilities to meet the County's water resource and environmental protection objectives.
 - c. Work with State and Federal agencies and property owners to remedy incidents where a significant health threat has been identified by the Clarke County Health Department involving existing residential development. Any applicable grant or low-interest loan program should be pursued to assist in paying for the construction of such facilities.
 - d. Provide Waterworks and/or Sewerage System & Treatment Works, through the Clarke County Sanitary Authority, in partnership with property owners, for business uses at the intersection of two or more federally designated primary highways and/or state designated limited access primary highways, specifically the Waterloo Area (US Routes 50/17 and 340). Any applicable grant or low-

interest loan program should be pursued to assist in paying for the construction of Sanitary Authority facilities.

9. Permit, in cooperation with the Clarke County Sanitary Authority, the construction of sewage treatment facilities, in accord with the aforementioned policies. These facilities should be financed by the fees charged to the users of the facilities, State and Federal grant programs, or other innovative and incentivized financing programs that produce a net benefit to the County. Facilities should use innovative, cost-effective technology consistent with environmental protection policies, such as water recycling/land application systems.
10. Evaluate all private development proposals as they relate to public utility and land-use plans.
11. Improve coordination among County departments in standardizing methods of financial calculation and projection.

Objective 12 -- Transportation

Ensure that the County's transportation system provides safe and efficient means for all modes of travel for citizens and visitors through coordinated land use decision-making and judicious use of limited fiscal resources.

1. Maintain a transportation plan that includes an inventory of the County's existing transportation network, planning assumptions, needs assessment, and recommended future improvements.
2. Develop specific strategies for prioritizing transportation projects, responding to new State and Federal projects in the County, and identifying new projects to improve safety or increase capacity of the public road system. Include policies on bicycle and pedestrian facilities and commuter facilities.
3. Maintain the existing primary road system at its present level and upgrade it only for safety purposes or planned traffic increases to the extent funds are provided by the Virginia Department of Transportation.
4. Establish specific transportation planning policies in the area plans for the County's designated growth areas including but not limited to policies on walkability, bicycle and pedestrian mobility, interconnected street networks, traffic calming, and other modern techniques that support high quality communities and neighborhoods.
5. Carefully assess the short- and long-range fiscal impacts of transportation improvements when land-use decisions and plans are made.

6. Continue to maintain a County bicycle and pedestrian plan.

Objective 13 – Broadband Internet Access

Facilitate the development and expansion of broadband internet access options with sufficient speed and capacity to serve the needs of County residents and businesses. Recognize that reliable and cost-effective broadband internet will continue to be critical not just for communications and entertainment but also for applications such as distance learning, teleworking, telemedicine, and home and business automation.

1. Pursue partnerships with private sector companies, public utilities, and other entities that provide broadband internet service or infrastructure.
2. Explore all possible funding opportunities and methods to generate revenue for broadband expansion.
3. Maintain a County broadband committee to coordinate the County’s efforts, to promote awareness of broadband options and availability, and to stay up-to-date on current technologies and innovations.
4. Consider participation in pilot projects or “beta-testing” opportunities to determine whether new technologies may improve the County’s broadband options.
5. Ensure that County regulations facilitate compatible and effective expansion of both wired and wireless broadband infrastructure.

CHAPTER III

Implementing Components

OVERVIEW

The Clarke County Comprehensive Plan utilizes a base plan structure with several implementing component plans. This document, the “base plan,” contains goals, objectives, and policies that provide general guidance on land use decision-making. The “implementing component plans” are topic-specific plans that contain more detailed factual information than the base plan provides and strategies on designated growth areas, industry sectors, and County resources. Each component plan is considered to be part of the Comprehensive Plan.

Each component plan is developed, vetted, and adopted through the same public process required for the Comprehensive Plan, and each is reviewed and updated periodically to account for new challenges and impacts associated with growth and regulation. Component plans are standalone documents that can be obtained from the County Planning Department or the Clarke County website.

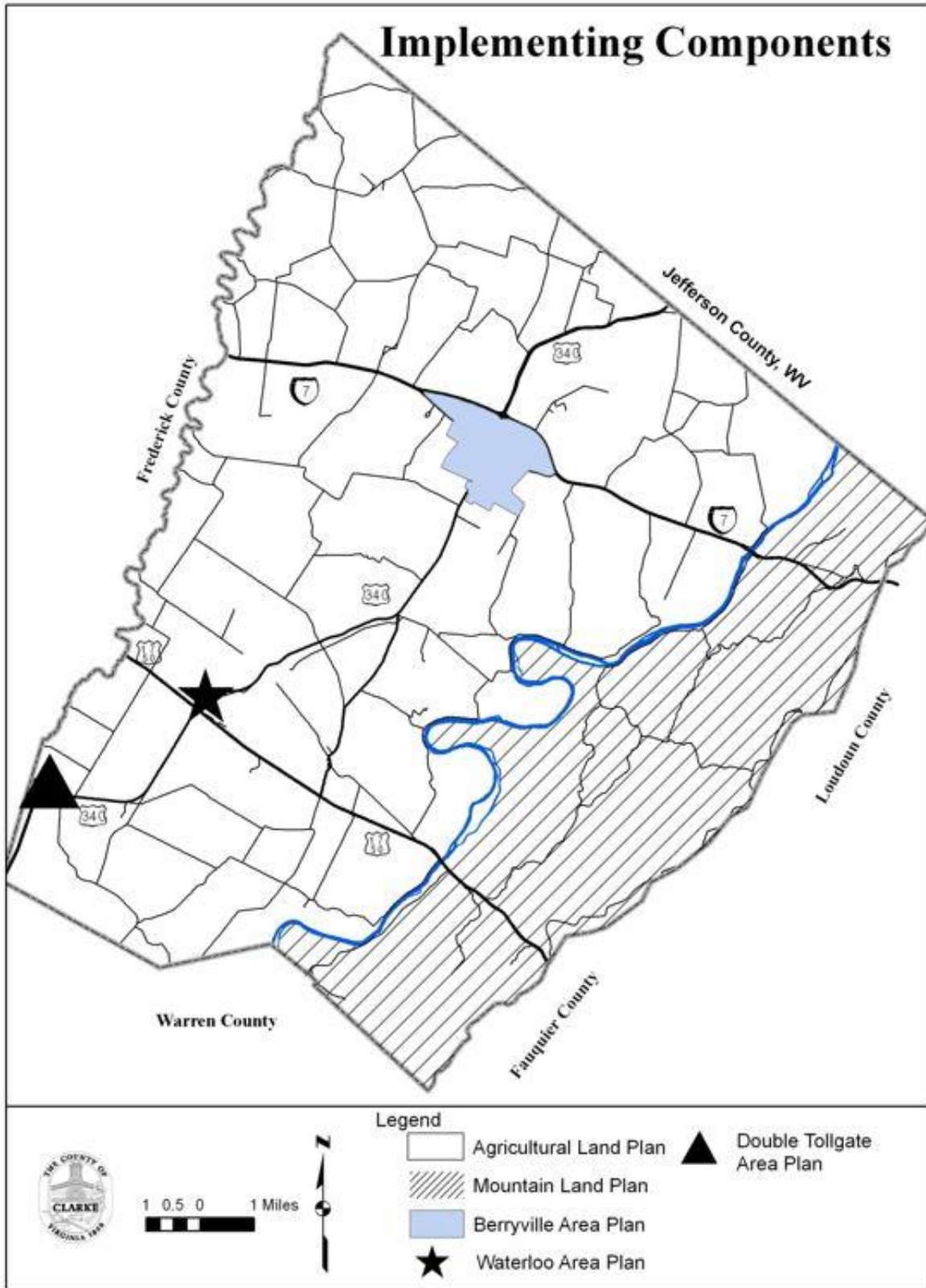
Below is a list of the current implementing component plans:

1. Agricultural Land Plan
2. Mountain Land Plan
3. Berryville Area Plan
4. Waterloo Area Plan
5. Double Tollgate Area Plan
6. Water Resources Plan
7. Historic Resources Plan
8. Transportation Plan
9. Recreation Plan

One new component plan, the Village Plan, is recommended to be created to provide guidance and recommendations for the future development of the County’s three unincorporated villages (Millwood, Pine Grove, and White Post).

Two component plans that are not on the above list but were implementing components of the 2013 Comprehensive Plan are the Capital Improvement Plan and Economic Development Strategic Plan. The component plan status of these two plans was removed with the adoption of the 2022 revision to the Comprehensive Plan. A discussion of this change is included in the “Other Relevant Plans and Studies” section of this Chapter.

MAP 10 – IMPLEMENTING COMPONENTS



REVIEW AND UPDATE OF COMPONENT PLANS

Because component plans are part of the County’s Comprehensive Plan, each is required to be reviewed at least once every five years to determine whether the plan needs to be updated or modified. The Comprehensive Plan’s guidance is used to inform the development of each component plan and it is important to ensure all goals, objectives, and policies/strategies are consistent among the Comprehensive Plan and component plans. Given the number of component plans that have to be evaluated once every five years, the following guidelines are recommended for reviewing and updating component plans:

1. Component plans should not be updated while a Comprehensive Plan review is in progress. This is to ensure that the component plan update process is informed using guidance from a current and updated Comprehensive Plan.
2. When appropriate, component plan reviews should be grouped or conducted at the same time to take advantage of deliberating common or similar issues. This will help to ensure that updated component plans are consistent with one another.
3. Where applicable, component plan recommendations should cross-reference the goals, objectives, or policies from the Comprehensive Plan that are used to inform the recommendations.
4. For scoping purposes, five-year review resolutions that are adopted by the Planning Commission to initiate review of a component plan should include an initial list of issues and concerns to be addressed.

CURRENT IMPLEMENTING COMPONENT PLANS

1. Agricultural Land Plan

<p><u>Adoption Date of Current Version:</u> February 21, 2017</p>	<p><u>Status of Five-Year Review Resolution:</u> Resolution adopted on February 4, 2022</p>
<p>Corresponding Comprehensive Plan Objectives:</p> <ul style="list-style-type: none"> • Objective 1 – Agriculture • Objective 3 – Natural Resources • Objective 5 – Conservation Easements • Objective 6 – Outdoor Resources • Objective 10 – Economic Development • Objective 13 – Broadband Internet Access 	

Summary:

The Agricultural Land Plan was first developed in 1987 to outline the County’s symbiotic relationship with its agricultural industry including approaches to supporting and promoting

agriculture, and guidance for land use planning and development of regulatory tools to preserve farmland.

In 2016, the Agricultural Land Plan underwent an extensive cover-to-cover rewrite of the previous version that was adopted in 1997. The 1997 Plan contained detailed statistical information about the agricultural industry in Clarke County but did not include recommended goals, objectives, and strategies. The 2016 Plan added goals, objectives, and strategies that focus on providing support to agricultural businesses and protecting them with appropriate land use and regulatory policies.

Current Component Plan Goals:

The Goals of the 2016 Agricultural Land Plan are as follows:

1. Actively support the practice of agriculture and the preservation of agricultural land.
2. Promote agricultural industry and business.
3. Establish land use and regulatory policies to support the agricultural sector and preserve agricultural land.

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that, in addition to the policy guidance in the aforementioned Comprehensive Plan objectives, two specific issues should be considered.

The first issue is the potential merger of the Agricultural Land Plan and Mountain Land Plan to create a combined component plan for the County’s rural, unincorporated areas. The Mountain Land Plan’s current objectives are also relevant to issues impacting the County’s agricultural areas west of the Shenandoah River. Combining these two plans would allow these issues to be evaluated on both a County-wide basis and on how they impact agricultural areas uniquely. The combined review can also assist in developing new objectives and strategies for land use decision-making in agricultural areas.

This leads into the second issue – determining the form and scale of compatible agribusiness and agritourism uses and activities. Since the 2013 Comprehensive Plan and the 2016 Agricultural Land Plan were adopted, agricultural businesses regionally have expanded and taken on new forms with new impacts. New Code of Virginia regulations have been adopted to limit local regulation of agritourism activities, resulting in proliferation of businesses that attract visitors to a farm or agricultural operation for retail sales or education and entertainment purposes. Similar uses have also been proposed for public assembly activities such as weddings and other special events to take advantage of the scenic beauty in the County’s rural and agricultural areas. Additionally, operators of a large-scale hydroponic farming operation considered locating in the County which could have brought potential adverse impacts to roads, groundwater supplies, the night sky, and the County’s scenic beauty.

Revisions to both the Agricultural Land Plan and the Mountain Land Plan should include an evaluation of and recommendations for determining the compatible size, scope, intensity, and appearance of these and other similar non-traditional agricultural operations which may locate in the County in the future.

2. Mountain Land Plan

<p><u>Adoption Date of Current Version:</u> June 21, 2005</p>	<p><u>Status of Five-Year Review Resolution:</u> Overdue</p>
<p>Corresponding Comprehensive Plan Objectives:</p> <ul style="list-style-type: none"> • Objective 2 – Mountain Resources • Objective 3 – Natural Resources • Objective 5 – Conservation Easements • Objective 6 – Outdoor Resources • Objective 10 – Economic Development • Objective 13 – Broadband Internet Access 	

Summary:

The Mountain Land Plan was first adopted in 1994 to describe the mountain environment located east of the Shenandoah River, to identify character elements that are important to the County’s residents and stakeholders, and to outline a plan for future development patterns. The Plan was later revised in 2005 as most flat and easily accessible land in this area had been developed and parcels with more difficult access and terrain challenges were now being developed. The 2005 Plan contained numerous recommendations for the adoption of text amendments to various ordinances in an effort to address these development impacts. Recommendations addressed the following subject areas:

- Minimum lot size and required open space provision with subdivisions
- Subdivision design requirements including location of utilities, construction of private access easements, and location of propane tanks
- Allocation of dwelling unit rights in boundary line adjustment transactions
- Vegetative buffer and clearing limit requirements
- Clearing limits for agricultural uses
- Protection for slippage soils and strengthening of erosion and sediment control regulations
- Stronger regulation of forestry management activities

Since 2005, the Plan's recommended text amendments have all been addressed and most have been incorporated into applicable ordinances. Therefore, the 2005 Plan can be considered fully implemented.

Current Component Plan Objectives:

The objectives listed in the 2005 Mountain Land Plan are as follows:

1. Protect the forest resources of the area
2. Protect surface water quality of the area
3. Protect availability and quality of groundwater in the area
4. Protect wildlife habitats and ecosystems (including natural heritage areas)
5. Protect the scenic values and scenic byways of the area
6. Protect cultural resources (such as the Appalachian National Trail / historic structures/sites)
7. Ensure safe public and private roads
8. Protect private property rights
9. Provide for well-sited development compatible with the first eight objectives

Recommendations for Next Revision:

The Mountain Land Plan is the only component plan that has not been recently reviewed and updated, primarily due to the fact that the Plan is considered to be fully implemented. An update of the Plan would be an extensive project and likely a complete rewrite to address current-day issues that are facing the mountain areas. Previous work on the Plan involved extensive meetings with residents and stakeholders and drew significant participation and public comment.

The next revision should take a similar community planning approach by soliciting comments on what issues are important to mountain residents and stakeholders, as well as whether the 2005 Plan's objectives remain relevant and should be documented and/or updated. Any new goals, objectives, and policies/strategies developed for the revised Plan should be vetted collaboratively with the public on an informal basis before developing a final draft for formal public comment. Given the extensive nature of a revision project for this Plan, it is recommended that no other major projects be undertaken simultaneously with this revision project unless they are related to and can be used to inform the Plan's revision.

Additionally, consideration should be given to revising the Mountain Land Plan together with the Agricultural Land Plan to develop a consolidated component plan for the County's rural, unincorporated areas. As listed above, the Mountain Land Plan's current objectives are also applicable to the non-mountainous rural areas west of the Shenandoah River. Combining these

two plans can allow these issues to be evaluated on a County-wide scale while simultaneously addressing how the issues have unique impacts on areas of the County such as the mountain lands.

Should these two plans be combined, it is important to ensure that relevant detail in the current Mountain Land Plan is not lost in the development process and that input is obtained from mountain-land stakeholders to identify new issues, concerns, and viewpoints.

3. **Berryville Area Plan**

<p><u>Adoption Date of Current Version:</u> May 17, 2016 (by Board of Supervisors); May 10, 2016 (by Berryville Town Council)</p>	<p><u>Status of Five-Year Review Resolution:</u> Resolution adopted May 26, 2021 (review initiated)</p>
<p><u>Corresponding Comprehensive Plan Objectives:</u></p> <ul style="list-style-type: none"> • Objective 9 – Designated Growth Areas for Development • Objective 10 – Economic Development • Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility • Objective 12 – Transportation 	

Summary:

The Berryville Area Plan was first adopted in 1992 by Clarke County and the Town of Berryville to serve as a joint land use plan for the Berryville Annexation Area – undeveloped County lands adjacent to the Town limits that were designated for addition to the Town in accordance with the 1988 Town-County Annexation Agreement. The 1988 Annexation Agreement created two separate annexation areas – A and B. The Berryville Area Plan applies only to properties located in Annexation Area B. For the purposes of this Area Plan, the “Annexation Area” references only Annexation Area B.

The Area Plan is intended to be used as the primary guidance document for land use decision-making within the Berryville Annexation Area as it was developed in coordination with the Town and County comprehensive plans. The Area Plan identifies five Goals that summarize the Area Plan’s intent, and also includes land use Objectives and Policies for implementing the Goals across eight subject areas -- Environment, Transportation, Housing, Land Use, Public Facilities, Economic Development, Urban Design, and Implementation. These Objectives and Policies should be used to evaluate new development proposals, make decisions on public infrastructure siting and improvements, and assist in long-range planning and growth management projects.

The Area Plan also divides Annexation Area B into a series of Sub-Areas, or groups of parcels or portions of parcels that have similar development characteristics. These Sub-Areas were created following an extensive evaluation of historical, environmental, and geological characteristics of each Sub-Area. Based upon these characteristics, recommended use types were assigned to the Sub-Areas with residential or commercial densities based upon the net developable portion of the

parcels in the Sub-Areas. These densities are captured in a Future Land Use Table depicting the maximum number of residential units recommended for each Sub-Area recommended for residential use, and the maximum floor area per gross leasable area for each Sub-Area recommended for business use. As new or expanded developments are proposed, each application is evaluated against the applicable Sub-Area's recommendations to ensure consistency with the Area Plan. Each Sub-Area remains subject to the Area Plan's guidance and recommendations until the Sub-Area reaches maximum buildout.

Current Component Plan Goals:

The Goals of the 2015 Berryville Area Plan are as follows:

1. Provide a platform for the cooperative planning and development of lands annexed or designated for future annexation into the Town of Berryville.
2. Ensure that the Town and County's land use and environmental objectives for the annexation areas, as reflected in the respective comprehensive plans, are compatible and coordinated.
3. Verify that planned public infrastructure (water, sewer, transportation, high-speed internet) is sufficient to support the future development needs as reflected in the Plan.
4. Maintain the streamlined and readily understandable process for development of lands covered by the Plan from annexation status designation through the land use approval process.
5. Strongly encourage context-sensitive development plans that are designed to complement Downtown Berryville, that accommodate growth in a logical and efficient manner, and that provide for the maximum protection and preservation of natural resources, historic resources, and open space.

Recommendations for Next Revision:

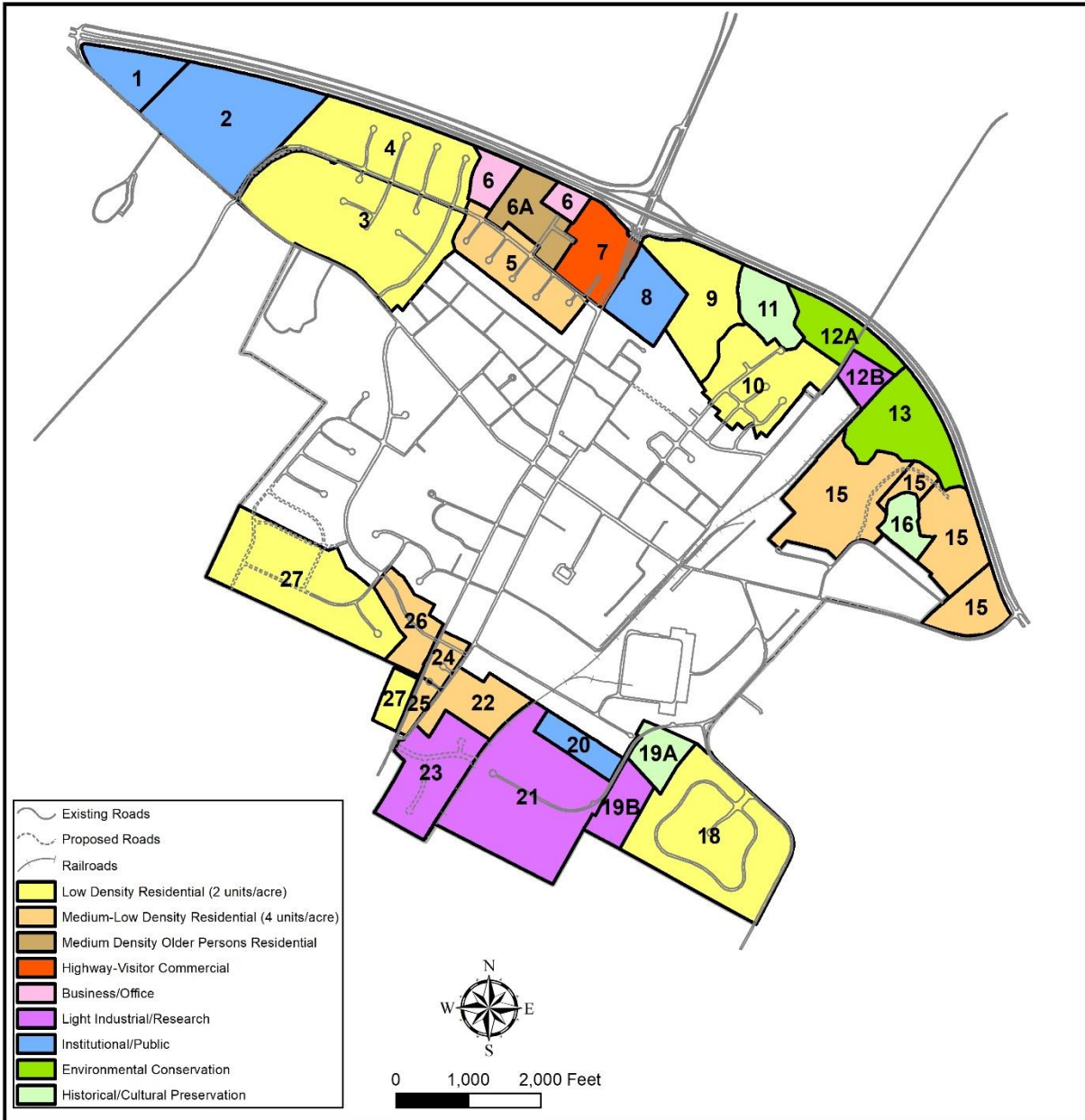
The Berryville Area Plan is jointly administered by the Town and County via the Berryville Area Development Authority (BADA) with technical support provided by the Town and County planning staffs. The BADA was formed in 1990 and serves as a joint planning commission with review authority over development proposals within the Annexation Area. As such, neither the County nor Town planning commissions are responsible for reviewing development proposals in the Annexation Area or for reviewing and updating the Area Plan.

The BADA adopted a five-year review resolution for the Plan in May 2021 with the following scoping items:

- The current Area Plan's goals and objectives and whether they remain relevant and current or need to be updated.

- Changes in population and demographic information as reported in the final release of 2020 Census data.
- The results of the Southeastern Collector Study (PrimeAE, April 2020).
- Cooperative economic development efforts between the Town and County.
- The build-out status of residential sub-areas (including Battlefield Estates, Hermitage Section 5, Berryville Glen, and Shenandoah Crossing) and whether these sub-areas can be removed from the Area Plan.
- The status of designated potential future growth areas.
- The impact of any updates to the County or Town Comprehensive Plans since the previous Berryville Area Plan update.
- The impact of new development projects, capital projects, or transportation improvements completed since the previous Plan update.
- Development of guidance for a future review and update of the Town-County Annexation Area Agreement.
- Any other subject not addressed or inadequately addressed by the current Plan

MAP 11 - Berryville Area Plan Sub Areas



4. Waterloo Area Plan

<p><u>Adoption Date of Current Version:</u> December 20, 2016</p>	<p><u>Status of Five-Year Review Resolution:</u> Resolution adopted on November 5, 2021</p>
<p><u>Corresponding Comprehensive Plan Objectives:</u></p> <ul style="list-style-type: none"> • Objective 9 – Designated Growth Areas for Development • Objective 10 – Economic Development • Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility • Objective 12 – Transportation • Objective 13 – Broadband Internet Access 	

Summary:

The Waterloo Area Plan, along with the Double Tollgate Area Plan, are two “business intersection area plans” that were developed to provide specific guidance for land use decision-making in two of the County’s major primary highway intersections. The Area Plan applies to the Waterloo unincorporated area immediately surrounding the intersection of Lord Fairfax Highway (U.S. 340) and John Mosby Highway (U.S. 50/17). The purpose of the Area Plan is to help ensure that appropriate land is provided for highway commercial uses, that necessary public utilities are available to support these uses, and that the character of development enhances the overall character of the County.

Current Component Plan Goals:

The Goals of the 2016 Waterloo Area Plan are as follows:

1. Facilitate the availability of broadband wired and wireless internet access and telecommunications for businesses and nearby residents.
2. Develop proactive strategies to facilitate new business development and expansion of existing businesses in the Plan Area.
3. Ensure that the Plan Area remains an attractive, marketable location for new and existing businesses and a destination for both local and out-of-area customers.
4. Maintain the current boundaries of the Plan Area, its current form and scale, and its current capacity for development while remaining open to expansion when build-out is substantially complete.

Plan Objectives include:

Objective 1. Set aside funding annually in the County budget for investment in capital projects to support the Waterloo Plan Area.

Objective 2. Pursue approaches to make public water and sewer connectivity more affordable for new and existing businesses.

Objective 3. Establish and maintain regulations to ensure quality and efficient site development standards and compatible uses.

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that the Waterloo Area Plan revision be conducted in accordance with the policy guidance in the aforementioned Comprehensive Plan objectives

5. Double Tollgate Area Plan

<p><u>Adoption Date of Current Version:</u> December 20, 2016</p>	<p><u>Status of Five-Year Review Resolution:</u> Resolution adopted on November 5, 2021</p>
<p>Corresponding Comprehensive Plan Objectives:</p> <ul style="list-style-type: none"> • Objective 9 – Designated Growth Areas for Development • Objective 10 – Economic Development • Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility • Objective 12 – Transportation • Objective 13 – Broadband Internet Access 	

Summary:

The Double Tollgate Area Plan, along with the Waterloo Area Plan, are two “business intersection area plans” that were developed to provide specific guidance for land use decision-making in two of the County’s major primary highway intersections. The Area Plan applies to the Double Tollgate unincorporated area immediately surrounding the intersection of Lord Fairfax Highway (U.S. 340/Va. 277) and Stonewall Jackson Highway (U.S. 522). The purpose of the Area Plan is to help ensure that appropriate land is provided for highway commercial uses, that necessary public utilities are available to support these uses, and that the character of development enhances the overall character of the County.

Current Component Plan Goals:

The Goals of the 2016 Double Tollgate Area Plan are as follows:

1. Designate Double Tollgate as a deferred growth area and develop policies to identify when the County should take proactive steps to facilitate economic growth.
2. Maintain the current boundaries of the Plan Area, its current form and scale, and its current capacity for development while remaining open to expansion when build-out is substantially complete.
3. Facilitate the availability of broadband wired and wireless internet access and telecommunications for businesses and nearby residents.

Plan Objectives include:

Objective 1. Identify development triggers to indicate when Double Tollgate should no longer be considered a deferred growth area and when the County should take proactive steps and investments to facilitate economic growth.

Objective 2. Pursue funding opportunities with Federal and State agencies, or through private sector partnerships, to expand wired and wireless broadband and telecommunications infrastructure in the Double Tollgate Plan Area.

Objective 3. Establish and maintain regulations to ensure quality and efficient site development standards and compatible uses.

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that, in addition to the policy guidance in the aforementioned Comprehensive Plan objectives, two specific issues should be considered:

- The impact of serving the plan area with public water and public sewer.
- Whether to change the plan area’s current “deferred growth” status.

Since the 2016 adoption of the current Double Tollgate Area Plan, changes have occurred that necessitate re-examination of the “deferred growth” status that was assigned to this Plan Area. The former State-owned “Camp 7” property adjoining to the southeast and outside of the Plan Area is now being considered for other State uses and a portion of the property has been assigned to the Virginia Port Authority for economic development purposes. Some of the uses being contemplated will require public water and potentially public sewer beyond the capacity of the existing sewage treatment plant on the Camp 7 property.

In 2021, the Frederick County Board of Supervisors approved Clarke County’s request for public water and public sewer to be extended into the Double Tollgate area. This approval authorized Frederick Water to begin negotiations with Clarke County on a development agreement which includes designation of a formal water and sewer service area. Since public water and public sewer are likely to be needed for uses on the Camp 7 property, the service area would exceed the current boundaries of the Double Tollgate Plan Area.

As a result of these recent changes, the revision of the Double Tollgate Area Plan will need to address how the Plan Area boundaries will be affected by:

1. The potential future expansion of public water and sewer from Frederick County.
2. The Virginia Port Authority’s economic development efforts on their portion of the Camp 7 property.

This evaluation would include whether Camp 7 (in whole or in part) should be located in a water and sewer service area only, or whether the boundaries of the Plan Area and Highway Commercial-scale development should be contiguous with the water and sewer service area boundaries by extending the Plan Area into the Camp 7 property.

6. Water Resources Plan

<p><u>Adoption Date of Current Version:</u> September 25, 2018</p>	<p><u>Status of Five-Year Review Resolution:</u> To be adopted by September 25, 2023</p>
<p>Corresponding Comprehensive Plan Objectives:</p> <ul style="list-style-type: none"> • Objective 1 – Agriculture • Objective 2 – Mountain Resources • Objective 3 – Natural Resources • Objective 6 – Outdoor Resources 	

Summary:

The Water Resources Plan was originally adopted in 1998 and 1999 as a two-part component plan addressing the County’s groundwater and surface water resources and issues separately. The most recent update in 2018 combined and modernized the Plan into a more concise document to address the County’s water quality and quantity issues.

The Plan should be used by property owners, elected and appointed officials, and other interested stakeholders to understand the County’s approach to protecting water resources. The Plan should also be applied in tandem with the recommendations found in the County’s Comprehensive Plan, Agricultural Land Plan, Mountain Land Plan, and other relevant component plans. Examples of some of the ways that this Plan can be used include:

- Determining how the County should protect water resources, both quality and quantity, to ensure adequate clean supplies for County residents.
- Balancing water quality and availability with the desire to accommodate current and future growth and economic development.
- Evaluating land development applications and proposed changes to the Zoning and Subdivision Ordinances.
- Reviewing and updating the County’s Comprehensive Plan and component plans.

Current Component Plan Goals and Objectives:

The Goals of the 2018 Water Resources Plan are as follows:

Goal 1. Protect and enhance water quality.

Objective 1. Protect groundwater resources from contamination and reduce contamination where present

Objective 2. Protect surface water resources from contamination

Goal 2. Protect and maintain water availability.

Objective 1. Protect water availability through regulatory action

Objective 2. Protect water availability through programmatic action

Goal 3. Engage and educate individuals, communities and governments in watershed stewardship.

Recommendations for Next Revision:

The Water Resources Plan is not due for a five-year review evaluation until mid-2023. At that time, the following issues should be considered:

- The impact of any new or modified Federal and/or state regulations addressing water quality or quantity.
- Evaluation of the County’s current water quality and quantity programs.

7. Historic Resources Plan

<u>Adoption Date of Current Version:</u> June 19, 2018	<u>Status of Five-Year Review Resolution:</u> To be adopted by June 19, 2023
<u>Corresponding Comprehensive Plan Objectives:</u> <ul style="list-style-type: none"> • Objective 4 – Historic Resources • Objective 8 – Village Plans – Millwood, Pine Grove, White Post 	

Summary:

The Historic Resources Plan was first adopted in March 2001 and most recently was revised in June 2018. The purpose of the Plan is to identify and develop strategies and initiatives to facilitate the long-term protection and preservation of the County’s historic resources. The Plan is action-oriented in nature with the County’s Historic Preservation Commission (HPC), as supported by the Department of Planning and the County’s architectural history consultant, charged with implementing its recommendations.

Current Component Plan Goals and Objectives:

The Historic Resources Plan does not contain a typical list of goals, objectives, and strategies/policies. Instead, it includes a list of future projects to be undertaken by the Historic Preservation Commission (HPC) in furtherance of the County’s historic preservation program.

Recommendations for Next Revision:

The Historic Resources Plan is not due for a five-year review evaluation until mid-2023. At that time, the following issues should be considered:

- Identifying and prioritizing new and existing action items
- Evaluating the future form and structure of the County’s historic preservation program including the role of the Historic Preservation Commission and County staff, as well as long-term funding of historic preservation initiatives

8. Transportation Plan

<u>Adoption Date of Current Version:</u> March 18, 2014	<u>Status of Five-Year Review Resolution:</u> Adopted on January 4, 2019 (review initiated)
Corresponding Comprehensive Plan Objectives: <ul style="list-style-type: none"> • Objective 10 – Economic Development • Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility • Objective 12 – Transportation 	

Summary:

The Transportation Plan was developed in accordance with Objective 12 of the Comprehensive Plan to ensure “that the County’s transportation system provides safe and efficient means for all modes of travel for citizens and visitors through coordinated land use decision-making and judicious use of limited fiscal resources. The Plan is designed to comply with the requirements of Code of Virginia §15.2-2223 which outlines specific transportation elements that must be included as part of a jurisdiction’s comprehensive plan. These required elements include:

- An inventory of the County’s transportation system
- Planning assumptions to support the County’s policies and proposed improvement projects
- A needs assessment that compares the existing transportation system with the County’s land use policies to determine how future growth will affect the system
- Proposed improvement projects with cost estimates that address the County’s transportation needs.

Current Component Plan Strategies:

In addition to a list of priority transportation projects, the Transportation Plan contains the following recommended strategies:

1. Conduct a formal evaluation of the Transportation component plan in conjunction with the five-year review of the County's Comprehensive Plan. Perform interim evaluations of the Transportation Plan to gauge how any new impacts or funding challenges may impact the Plan's approach.
2. Continue to focus the County's limited transportation funds on projects that improve traffic safety, improve functionality, add bicycle or pedestrian features, provide new or enhance existing commuting opportunities, or replace existing gravel public roads or road segments with new hard surfaces.
3. Oppose public and private efforts to expand capacity of the County's road network outside of the incorporated towns and business growth areas including the State and Federal primary highways.
4. Support projects that improve safety, functionality, and capacity of the public road network within the Towns of Berryville and Boyce and the business growth areas of Waterloo and Double Tollgate.
5. Develop and maintain a clearinghouse of County traffic data, in conjunction with the Virginia Department of Transportation, to aid the governing bodies in making land use decisions and allocating transportation funding to specific projects.

Recommendations for Next Revision:

The Planning Commission adopted a five-year review resolution in January 2019 with the following issues recommended for consideration:

1. Integrate new transportation funding programs adopted or modified since 2014, including the Commonwealth of Virginia's "Smart Scale" program, into the Transportation Plan.
2. Evaluate each priority improvement project to determine whether the project remains relevant and would address current County needs, along with the likelihood of being funded through State and/or Federal programs such as "Smart Scale."
3. Evaluate whether to include new priority projects including the Town of Berryville's proposed southeastern collector road that may involve the extension of Jack Enders Boulevard to U.S. 340.
4. Determine whether to integrate recommendations from the 2014 Town of Berryville-Clarke County Bicycle and Pedestrian Plan into the Transportation Plan.

5. Determine whether to request the Virginia Department of Transportation to conduct new transportation studies, such as a crossover study of the County’s four-lane divided primary highways, to aid in developing future project and funding priorities.
6. Coordinate any proposed changes to Comprehensive Plan Objective 12 (Transportation) with any revised recommendations in the Transportation Plan.

9. Recreation Plan

<u>Adoption Date of Current Version:</u> December 15, 2020	<u>Status of Five-Year Review Resolution:</u> To be adopted by December 15, 2025
Corresponding Comprehensive Plan Objectives: <ul style="list-style-type: none"> • Objective 3 – Natural Resources • Objective 6 – Outdoor Resources 	

Summary:

The County’s first Recreation Plan was adopted in August 2015 and underwent a modest technical update in December 2020. The purpose of the Plan is to address the recreational needs of the community and to describe the existing resources, how they will be protected and promoted, and the steps that should be taken to ensure the continued viability and enhancement of these resources for present and future generations. The Plan is action-oriented with specific functional strategies and recommendations to protect, promote, grow, and enhance the County’s active and passive recreational resources.

Current Component Plan Goals:

The 2020 Recreation Component Plan identifies the following overarching goals:

1. Meet the recreation needs of the community
2. Increase awareness of all recreational activities
3. Assist in maximizing the recreation value of existing assets
4. Promote connectivity among the County’s active and passive recreation resources
5. Update the Recreation Plan on a 5 year cycle

Recommendations for Next Revision:

The Recreation Plan was last revised in December 2020 and is not due for a five-year review evaluation until December 2025. At that time, the Plan’s goals and objectives should be evaluated against the County’s future recreation needs and any Federal, State, or private sector plans to modify, expand, or construct new recreation facilities in the County.

NEW COMPONENT PLAN TO BE DEVELOPED

Village Plan

Corresponding Comprehensive Plan Objectives:

- Objective 1 – Agriculture (for Millwood and White Post)
- Objective 2 – Mountain Resources (for Pine Grove)
- Objective 8 – Village Plans – Millwood, Pine Grove, White Post
- Objective 9 – Designated Growth Areas for Development
- Objective 10 – Economic Development
- Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility
- Objective 12 – Transportation
- Objective 13 – Broadband Internet Access

Summary:

The need to develop a component plan for the County’s unincorporated villages was first identified in the 2013 Comprehensive Plan. These villages include Millwood, Pine Grove, and White Post and are not designated by the County as growth areas despite the fact that they each possess a concentration of residential and commercial uses. Furthermore, White Post is served by public water and Millwood is served by public water and sewer which can be an enticement for potential future growth pressures. A Village Plan would include strategies to help address future land use requests and infrastructure needs while simultaneously ensuring that the character of each village is maintained and unintended, unplanned growth does not occur in the future.

Recommendations for Development:

Similar to the update of the Mountain Land Plan, the creation of a new Village Plan is likely to be a complex and time-consuming project. Development of the Plan should take a community planning approach by soliciting input from the residents and business owners for each village. This input should include defining how these stakeholders view the character of their village and its future growth and development. Planning “charrettes” or workshops could be used as a hands-on approach for stakeholders to work informally with Commissioners and staff and to visualize the process through mapping and prioritization exercises. Efforts should also be taken to be inclusive of the viewpoints of all stakeholders, and draft documents should be vetted with each community deliberately as the plan development process progresses.

Given the extensive nature of a project to develop this new Plan, it is recommended that no other major projects be undertaken simultaneously with this revision project unless they are related to and can be used to inform the Plan’s creation.

OTHER RELEVANT PLANS AND STUDIES

From time to time, the County develops plans and studies to guide and inform decision-making on a variety of issues. While all plans and studies that are adopted or accepted for use should be developed in accord with the Comprehensive Plan’s guidance, not all are appropriate for inclusion as an implementing component plan of the Comprehensive Plan. Some plans and

studies focus on a narrow or technical issue that is not directly related to the Comprehensive Plan. Other plans have goals or action items that evolve over a shorter time span and need to be updated annually or more frequently than the five-year time span of a component plan.

When such plans and studies are developed, the plan or study's initial scoping should ensure consistency with the Comprehensive Plan and implementing component plans. For example, a study to identify an area for new County athletic fields should be scoped using applicable recommendations in the Comprehensive Plan's Objective 6 (Outdoor Resources) and Objective 11 (Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility), and any applicable recommendations in the Recreation Component Plan. When the plan or study is completed, there should also be a subsequent finding as part of the action to adopt or accept that the plan or study is consistent with the Comprehensive Plan. These measures will help to ensure consistency across all County planning documents and resources and will also help to ensure that the Comprehensive Plan remains a strong and vital expression of the County's land use and growth philosophies.

Examples of other types of plans and studies developed by the County are described below.

1. Capital Improvement Plan

The Capital Improvement Plan (CIP) is a planning document used to prioritize and fund capital projects over a five-year timeframe. The CIP is reviewed on an annual basis in conjunction with the County's annual budget process. The Planning Commission's role in the process is to evaluate proposed projects and provide a formal recommendation to the Board of Supervisors on the following issues:

- Conformance with the Clarke County Comprehensive Plan and any applicable implementing component plans.
- Whether the project descriptions include a justification or need for the project.
- Whether the project maximizes public convenience and accessibility.
- Whether the project avoids extension of public infrastructure outside of designated growth areas which could cause new development pressures (where applicable).

The CIP was previously considered to be an implementing component plan of the Comprehensive Plan. In 2020, a formalized CIP review process was developed which would have the Commission review and provide recommendations in the fall of each year to be used by the Board of Supervisors in their annual budget process. This formalized annual review process requires a much more frequent review than the five-year schedule of a component plan. The CIP is no longer considered to be an implementing component plan of the Clarke County Comprehensive Plan.

2. Economic Development Strategic Plan

The County's first Economic Development Strategic Plan was adopted in October 2014 as a new component of the 2013 Comprehensive Plan. By virtue of being a "strategic plan," its recommendations primarily consist of short-to-medium term action items to be implemented. The purpose of the Strategic Plan is to guide the County's economic development initiatives while supporting and drawing guidance from the County's overall growth management policies for rural land conservation and other key goals found in the Comprehensive Plan and component plans. The Strategic Plan contains the following guiding principles:

- Support the County's Comprehensive Plan and desired future land use pattern of concentrated population within a largely rural environment. The County must avoid compromising its overall growth management philosophy by taking advantage of the natural and historic resources in ways that help preserve them while enhancing their economic value.
- Grow the tax base as the primary objective, with a secondary objective to increase economic activity through the expansion of business transactions and/or by adding new jobs, particularly if the jobs are filled by the existing labor force or in-commuters.
- Build on past and current successes in business development.
- Target short-term as well as long-term economic prospects.
- Foster close cooperation between the County and the Town of Berryville, as the two jurisdictions form a unified local economy.
- Set and memorialize clear priorities and responsibilities to allow the County and Town to best use limited resources, take best advantage of the community's key attributes, and focus on the most important and practical actions for early success.

The 2022 Comprehensive Plan Revision includes the removal of the Economic Development Strategic Plan as an implementing component plan. Implementation of the 2014 Strategic Plan's action items has resulted in the establishment of a formal County economic development program staffed by a full-time director managing a range of programs and initiatives. While it remains important to maintain a Strategic Plan, such a plan should now be in a form that allows for it to be evaluated and modified on an annual basis instead of once every five years with short-term objectives that can be changed and updated flexibly at a similar frequency.

3. Telecommunications Infrastructure and Broadband Study 2020

The Telecommunications Infrastructure and Broadband Study 2020 was developed in November 2016 for the County by the Atlantic Group, a telecommunications consulting firm, for the purpose of identifying strategies to encourage the expansion of cellular communication and broadband internet access throughout Clarke County. The Study is action-oriented in nature and includes the consultant's recommendations for changes to the County's zoning regulations for telecommunication towers, strategies for working with private-sector providers of internet service and infrastructure through a dedicated broadband committee, and funding strategies. The Study was accepted by the Board of Supervisors in December 2016 and was used to develop

zoning ordinance text amendments to facilitate tower construction and the formation of a Broadband Implementation Committee to work with potential private-sector partners.

4. Energy and Resource Management Plan

The purpose of the Energy and Resource Management Plan is to private goals and policies to address energy efficiency, conservation, and education and to create a plan to reduce the County’s overall environmental impact in order to save tax dollars and improve services. The Plan was developed beginning in 2008 by a team of business leaders, citizens, elected officials, and County staff initially as an interim report addressing nine categories where resource management could be achieved:

- Energy efficiency
- Renewable energy
- Transportation
- Land use
- Water conservation
- Recycling and waste management
- Education and outreach
- Incentive programs
- County employee management

The interim report was developed into the Plan which the Board of Supervisors adopted, along with a Resolution Establishing Energy Resource Management Policies, on January 19, 2010. The Plan has been used to create a recycling program and to implement energy-saving measures in County buildings among other initiatives.

5. Town of Berryville & Clarke County Bicycle & Pedestrian Plan

The Town of Berryville & Clarke County Bicycle & Pedestrian Plan was developed in 2014 by the Northern Shenandoah Valley Regional Commission (NSVRC) and a work group of Town and County appointed officials and staff. The purpose of the Plan is to provide a comprehensive overview of the existing transportation network with recommendations for bicycle and pedestrian enhancements to better serve transportation, recreation, and economic development objectives. This Plan also includes recommendations to incorporate bicycle and pedestrian improvements into the Town and County’s comprehensive plans, strategies to fund construction of recommended improvements, coordination with economic development to promote tourism opportunities, and coordination with law enforcement and schools to promote safety and awareness training.

6. Cost of Community Services Study

The Cost of Community Services Study was developed in 2018 on behalf of Clarke County by the University of Virginia’s Weldon-Cooper Center for Public Service. The Study examines the cost of providing public services for each of the County’s different land uses (i.e. agriculture/open space, residential, commercial/industrial). Ratios are used to gauge the demand

placed on local government services in comparison to the tax revenue that is generated by the land use. This information compares how existing land uses impact the county budget differently and can be used for county land use and infrastructure planning.

APPENDIX

Geological Profile

APPENDIX - Geological Profile

The notable geological features of Clarke County are described below. They include geologic areas, relief, watercourses, soil types, and groundwater. All are to some degree manifestations of the County's geologic framework, which dictates the nature of the topographic features and relief, the types of soils that occur, and the characteristics and locations of surface and underground water.

1. Geologic Areas

Map 12 shows the general geology of the northern Shenandoah Valley. Clarke County encompasses three geologic areas running south-north. From east to west, these zones are described as Blue Ridge, eastern lowland on carbonate rock, and central lowland on shale and siltstone.

a. Blue Ridge

The Blue Ridge geologic area lies east of the Shenandoah River and along the western slope of the Blue Ridge Mountains. It is composed primarily of Proterozoic metamorphosed intrusive and extrusive igneous and sedimentary rock, formed some 900 million to 600 million years ago¹. The high temperatures and pressures of metamorphism turned the Blue Ridge's diabbases into metadiabase (greenstone); basalts into metabasalts; rhyolitic tuffs into metatuffs; shales into metashales, slates and phyllites; sandstones into metasandstones and quartzites; and granites and diorites into gneisses. Later, a Cambrian sea, whose marine deposits form the carbonate rock of the eastern lowland, covered the landscape.

b. Eastern Lowland on Carbonate Rock

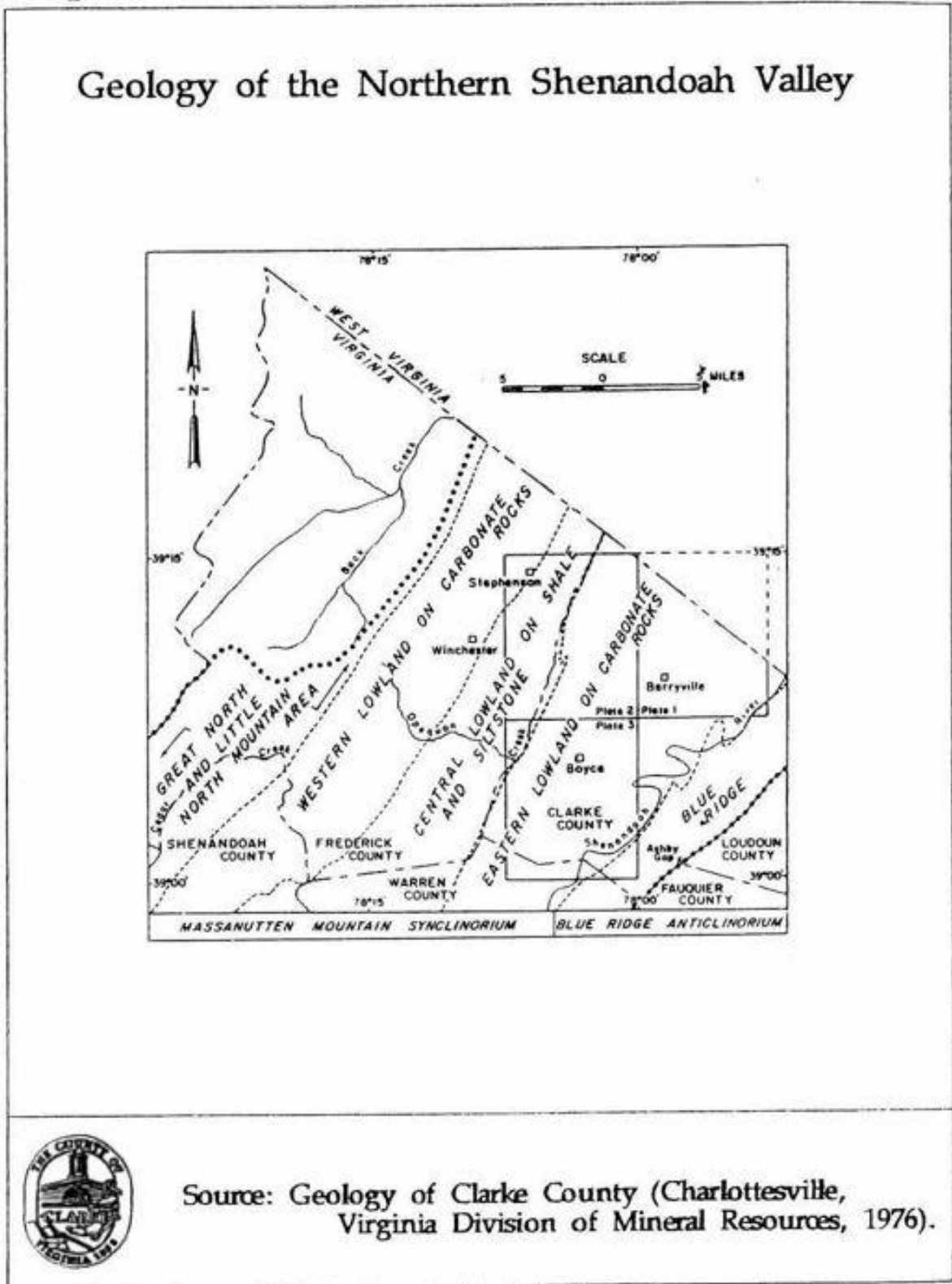
The eastern lowland geologic area, from the Shenandoah River west to the Opequon Creek, constitutes three-quarters of Clarke County. Its carbonate-rock framework varies but is primarily limestone and dolomitic limestone. Purest limestone is found on the western part of this area. Dolomitic limestone is found toward the east, along with lesser amounts of chert, sandstone, shale, siltstone, and mudstone. These sedimentary rocks, formed as chemical precipitates of calcium carbonate or sediments of mud or sand, were consolidated under shallow seas approximately 541-488 million years ago. They now constitute a 12,000-foot thick limestone and dolomitic-rock sequence that underlies the Shenandoah Valley. Areas that are underlain by carbonate rocks, such as limestone and gypsum, contain solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

c. Central Lowland on Shale and Siltstone

The far western sliver of Clarke County is in the area described as the central lowland on shale and siltstone, which extends primarily across eastern Frederick and Shenandoah Counties and western Warren County. These are the youngest rocks remaining in Clarke County, deposited during the Ordovician Period (488-443 million years ago) over the older limestone of the eastern lowland. Low rounded hills, a large number of surface streams, a thin soil cover, and an abundance of shale chips characterize the central lowland.

¹ Note that prehistoric time increments are typically referenced in reverse order.

MAP 12 Geology of the Northern Shenandoah Valley



2. Major Geologic Events

Two major geologic events, occurring after the rocks of the Blue Ridge and the eastern and central lowlands were formed, shaped the topography of Clarke County. The first, called the Allegheny Orogeny, occurred during post-Ordovician times when lateral pressures from the southeast caused a tremendous movement of the Earth's crust. Besides uplifting the Appalachian Mountains, this episode resulted in extensive folding, faulting, and fracturing of the previously fairly flat layers of rock (Figure 1).

The second and more recent major geologic event is the carving of the landscape by erosion, a process that continues today. Water is considered to be the eroding agent, as there is no evidence indicating glaciers extended into this area. The magnitude of the erosion is striking: rocks representing thousands of feet of sediment have been removed by erosion during the past one million years.

3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphosed granitic and volcanic rocks of the Blue Ridge have been highly resistant to erosion, but softer sedimentary rocks of the valley have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level on the Blue Ridge to 360 feet at the Shenandoah River. In the eastern and central lowland areas, the average elevation is about 600 feet.

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon watershed covers 35 square miles (or 20%) of Clarke County.

Flooding of the Shenandoah River prompted the County, in 1960, to establish regulations governing land use within the 100-year floodplain and 10-year floodway. The Zoning Ordinance defines a 100-year flood as a flood that, on the average, is likely to occur once every 100 years (i.e., that has a one (1) percent chance of occurring each year, although the flood may occur in any year). A floodway is defined as the channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood that, on the average, is likely to occur once every 10 years (i.e., that has a ten percent chance of occurring each year). These regulations restrict building, structure, and drainfield location in floodplains.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. They are shown by number on Map 4 and discussed below. Percentages are given for the amount of area covered by each type.

a. Upland Soils of the Shenandoah Valley

The uplands in the Shenandoah Valley encompass most of Clarke County, including nearly all of the major population centers and most of the better farmland. Most of the soils were formed from sedimentary rocks.

Soil groups 2, 3, and 4 all have numerous rock outcrops and sinkholes. Low available water capacity, shallow rooting depth, and outcrops of limestone bedrock limit the use of machinery for farming. Limitations for residential and community development include outcrops of limestone bedrock and numerous sinkholes and solution channels in the bedrock that may result in contamination of wells and springs by surface runoff and seepage from septic fields.

Soil groups 5 and 6 have numerous rock outcrops and sinkholes but are well suited to farming, mainly row crops, pasture, and apple orchards. Limitations for residential and community development include clayey subsoils with high shrink-swell potential and low strength. Permeability is moderately slow and should be considered when septic tank absorption fields are designed. Sinkholes and bedrock channels make the groundwater very vulnerable to pollution.

1. *Berk-Endcav-Weikert (3%) is about 70% gently sloping to rolling and about 30% hilly to steep soils. These are shallow to deep, well-drained soils that have a loamy or clayey subsoil formed from materials weathered from shale or calcareous shale. The area is used mainly for pasture but includes some row crops (70%) and woodlands (30%). The soil has many limitations for farming, very low available water capacity, limited rooting depth, high acidity, low natural fertility, and coarse fragments on the surface. It also has many limitations for residential and community development.*
2. *Carbo-Opequon-Oaklet (9%) is about 35% nearly level and 65% gently sloping soils. These are shallow to deep, well-drained soils that have a clayey subsoil formed from materials weathered from limestone. This area is 85% cleared and used for pasture and row crops; 15% is wooded and generally too rocky for pasture.*
3. *Rock Outcrop-Opequon-Swimley (6%) is about 60% nearly level and 40% gently sloping soils. Areas of rock-outcrop that are characterized by shallow and deep, well-drained soils formed from materials weathered from limestone. The area is about 75% cleared for crops or pasture and 25% wooded.*
4. *Rock Outcrop-Hagerstown-Swimley (14%) is about 20% nearly level and 80% gently sloping soils. Characterized by areas of rock outcrop and deep well-drained soils that have a clayey subsoil formed from materials weathered from limestone. The area is about*

65% cleared and 35% wooded.

5. *Poplimento-Timberville (20%) is about 70% gently sloping and 30% rolling soils. These are deep, well drained soils formed from materials from interbedded limestone, shale, and colluvium. The area underlain by these soils is well suited to crops, orchards, and pasture.*
6. *Poplimento-Webbtown-Timberville (19%) is about 40% gently sloping, 45% rolling, and 15% hilly soils. These are deep and moderately well-drained soils formed from materials from interbedded limestone, shale, and colluvium. These soils are well suited for crops, orchards, and pasture. There are limitations for development based on moderate shrink-swell potential, high clay content, and the presence of sinkholes.*

b. River Terrace and Floodplain Soils of the Shenandoah Valley

These areas are mostly along the Shenandoah River and include some of the better farmland (in terms of soils) in the County. The soils here, groups 7 and 8, were formed from alluvium deposited by the Shenandoah River or from residuum weathered from adjacent uplands.

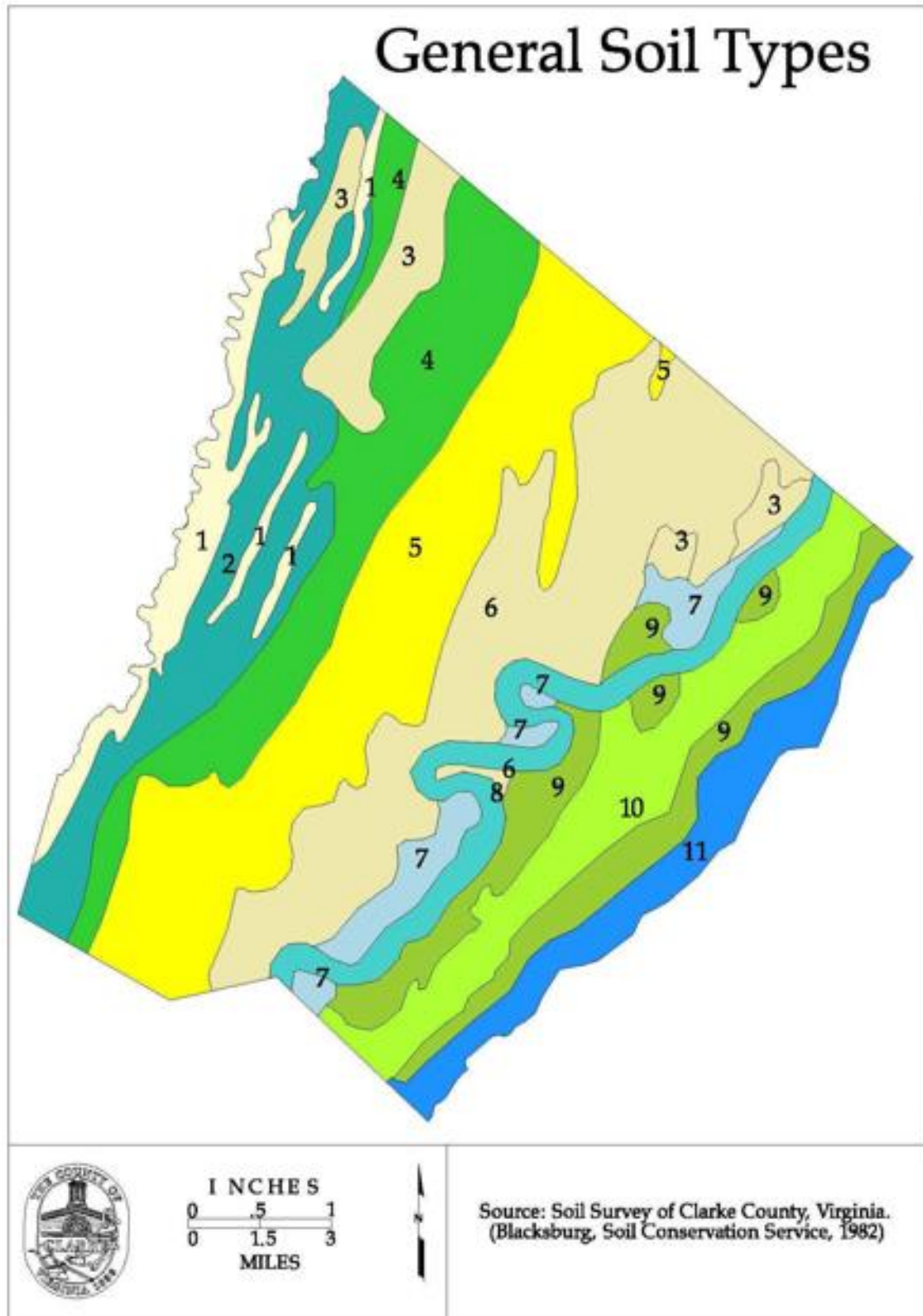
7. *Monongahela-Braddock-Webbtown (4%) is about 50% gently sloping, 30% rolling, 10% hilly, and 10% steep soils. Many areas have gravel and cobblestones on the surface. The area is used mostly for woodland but has some areas well suited for farming. About half the gently sloping and rolling soils are cleared and now used for cultivated crops or pasture. The area has many limitations for residential and community development.*
8. *Chagrín-Udipsamments-Lobdell (2%) is nearly level land that is occasionally flooded and therefore severely limited for residential and community development. The area is well suited for farming. Most is cleared and used for cultivated crops or pasture.*

c. Upland Soils of the Blue Ridge Mountains

The Blue Ridge is the roughest and steepest part of the County. It is mostly woodland and contains soil groups 9, 10, 11, formed from sedimentary and metamorphic rocks. These soils have limited potential for agriculture and residential development because of slope.

9. *Dekalb-Laidig (10%) is about 10% gently sloping, 30% sloping, 30% hilly, and 30% steep soils. These are moderately deep or deep, well-drained soils formed from materials weathered from sandstone. There is a west, northwest, or north aspect to half of the area. The area is mainly forested, due to steep slopes and rocky substrate.*
10. *Cardiff-Cataska-Whiteford (5%) is about 15% gently sloping, 40% sloping, 35% hilly, and 10% steep soils. Soils are deep to shallow, well-drained and formed from materials weathered from phyllites and slates. There is a west, northwest, or north aspect to half of the area.*
11. *Catoctin-Myersville-Lew (8%) is about 25% sloping, 45% moderately steep, and 30% steep and very steep soils. Stones and boulders limit agricultural and residential development.*

MAP 13 General Soil Types



6. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types because of the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient lava and granitic rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

Aquifer recharge is much more rapid in the eastern lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and dolostone is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.

END OF DOCUMENT



2022 Clarke County Comprehensive Plan

**DRAFT (REDLINED)
For Planning Commission Public Hearing
June 29, 2022**

ACKNOWLEDGEMENTS

CLARKE COUNTY PLANNING COMMISSION

George L. Ohrstrom, II, Chair (Russell Election District)
Randy Buckley, Vice Chair (White Post Election District)
Frank Lee (Berryville Election District)
Gwendolyn Malone (Berryville Election District)
Scott Kreider (Buckmarsh Election District)
Douglas Kruhm (Buckmarsh Election District)
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Bob Glover (Millwood Election District)
Pearce Hunt (Russell Election District)
Buster Dunning (White Post Election District)
Matthew Bass (Board of Supervisors representative)

PLANNING COMMISSION COMPREHENSIVE PLAN COMMITTEE

Douglas Kruhm (Buckmarsh Election District)
Anne Caldwell (Millwood Election District)
Bob Glover (Millwood Election District)
Matthew Bass (Board of Supervisors representative)
Randy Buckley (White Post Election District)
George L. Ohrstrom, II, Ex-Officio (Russell Election District)

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Terri Catlett, Vice-Chair (Millwood Election District)
Matthew Bass (Berryville Election District)
Doug Lawrence (Russell Election District)
Beverly B. McKay (White Post Election District)

CLARKE COUNTY PLANNING DEPARTMENT

Brandon Stidham, Planning Director
Jeremy Camp, Senior Planner/Zoning Administrator
Jeffrey Feaga, Preservation Planner/GIS Coordinator
Alison Teetor, Natural Resource Planner; CCEA Coordinator
Kristina Maddox, Office Manager/Zoning Officer

Clarke County Planning Department
101 Chalmers Court, Suite B
Berryville, VA 22611
540-955-5132

DATE OF PLANNING COMMISSION PUBLIC HEARING AND ADOPTION:

TO BE DETERMINED

DATE OF BOARD OF SUPERVISORS PUBLIC HEARING AND ADOPTION:

TO BE DETERMINED

“A plan serves a public body much as a promise serves an individual. If we make a promise, others expect that we will honor it with our actions.”¹

FOREWORD

The Comprehensive Plan maps the future of land use in Clarke County. This long-range Plan captures the County’s vision, projects the necessary resources to make this vision happen, and ~~develops the planning tools (guidelines and strategies)~~ *provides strategies and recommendations* to make the vision a successful reality. Such long-range planning, as set out in the Comprehensive Plan, anticipates future impacts of land use choices, and guides all present and future decisions regarding land use. *The Code of Virginia requires every county to adopt a comprehensive plan and to review it at least once every five years to determine whether it needs to be updated.*

The purpose of this plan is to guide land-use decisions, both public and private, as they relate to the specific goals of the County. The Plan is for the citizens of the County and, for this reason, considers many diverse interests. It cannot satisfy every citizen's particular interest but does provide a mechanism for the protection of the health, safety, and welfare of all County citizens. Most importantly, it provides an outline for future decisions on land use, natural resource protection, capital improvements, and economic growth while attempting to balance the community’s diverse interests.

Clarke County adopted its initial Comprehensive Plan on June 15, 1974. The Plan ~~has been~~ *was* updated ~~several times over the years in August 1974, September 1980, March 1988, August 1994, March 2001, and March 2007, most recently in March 2014.~~ *Revised guidance and innovations were added with each update, but the following* guiding principles ~~of the 2007 Plan~~ *were have remained consistent:*

- ~~Manage~~ *Managing* residential ~~and business~~ growth *in designated areas where it can be supported by public infrastructure in a fiscally-responsible manner.*
- *Allow low-density residential growth in rural areas consistent with the County’s sliding-scale zoning system.*
- *Ensure the prosperity of agriculture by* protecting ~~farmland~~ *agricultural land from development pressures and supporting the right to farm.*
- *Develop and refine strategies and regulatory approaches to account for the challenges of developing in County’s karst terrain and potential for groundwater contamination.*
- *Recognize that the County’s mountain areas and the Shenandoah River have different ecosystems from the valley requiring different planning and regulatory approaches to preserve the natural beauty and ecology of these areas.*
- ~~Protect~~ *Protecting* the County’s unique natural ~~environmental,~~ *historical,* and cultural resources.

¹ Charles Hoch, Linda C. Dalton, and Frank So, eds.
The Practice of Local Government Planning, 3rd Edition
Washington, DC: International City/County Management Association, 2000, p. 32.

- ***Encourage encouraging compatible*** business activity to broaden the tax base, particularly businesses related to agriculture.

~~These principles remain the focus of this updated Plan and its Implementing Component Plans.~~

~~Clarke County has many cultural, historical, and natural attributes that make it an attractive place in which to live. This Comprehensive Plan is designed to protect and enhance attributes that contribute to the rural and agricultural character of the County, while it accommodates additional people and businesses primarily in the designated growth areas.~~

This Comprehensive Plan is a document first and foremost for the citizens of Clarke County. It is designed to protect and enhance the quality of life and sense of community valued by the people who have chosen to live and work here.

SUMMARY STATEMENT OF PURPOSE

Clarke County places tremendous value on its unique natural and historic resources and its agrarian economy. This rural character makes the County an exceptional place to live, work, and play. ~~The This~~ Comprehensive Plan contains goals, objectives, and policy statements that are designed to ensure that these elements are maintained and protected. ~~Furthermore, The~~ Plan is drafted and organized to help citizens, business owners, appointed and elected officials, and other stakeholders clearly understand the path that the County has chosen in planning for its future.

This approach is summarized in the points below:

- The County’s conservation easement program, land use taxation, and various planning and zoning tools, ***including sliding-scale zoning***, shall continue to be used to protect rural areas, to aid in the vitality of our agricultural industries, and to preserve our natural and historic resources.
- Land use decision-making shall emphasize ***managed directed, controlled*** growth on a rural, small-town scale in designated areas where public infrastructure can be efficiently provided. These areas include the Towns of Berryville and Boyce as well as ~~other villages and~~ business intersections ***and unincorporated villages as*** described in this Plan and its ~~implementing~~ component ***plans***.
- The County will focus its resources on infrastructure and economic development projects to serve the designated growth areas. ***With the exception of efforts to expand broadband internet service***, residents and businesses in rural, ***unincorporated*** areas ***outside of designated growth areas*** should continue to expect rural levels of service.

- To ensure community vitality into the future, the County will explore and consider implementing new and innovative concepts, programs, projects, and regulations that provide diverse housing options, *compatible context-sensitive* economic development, and *cost-effective efficient* public infrastructure in designated growth areas.
- The County shall strive to support concepts, programs, projects, and regulations that *protect natural resources from significant degradation ensure environmental sustainability*. Clarke County's fundamental goal is to protect our natural resources so that we may pass them on to future generations. We seek to accomplish this through efforts that manage surface water and groundwater, protect and restore stream and river corridors, and preserve the integrity of our natural environment.
- The County shall also strive to support concepts, programs, projects, and regulations that ensure economic sustainability *in a fiscally-responsible manner consistent with its land-use philosophy*. Public and private sector investments in business, housing, and infrastructure should be economically viable, environmentally sound, and socially responsible to the community's objectives as set forth in this Plan. Achieving this goal requires *active* participation from the community, both to determine *community* needs and to identify and implement innovative and appropriate solutions *to address those needs*.

INTRODUCTION

Comprehensive Plans Generally

The Comprehensive Plan *is a combines* long-range planning *document that provides guidance with guidelines* for making *tomorrow's land use and policy* decisions. *The Plan* is for the *County's* citizens, *business owners, and stakeholders of the County* and thus considers many diverse interests. Most important, it provides an outline for future land-use decisions that balance diverse interests and are based upon the goals, objectives, and policies of the County.

The Comprehensive Plan provides a vision for how a community should grow in the future. It is typically long-range and forward-looking, addressing a wide range of issues and questions relating to land use, community facilities, infrastructure, preservation, *natural resource protection*, community character, and economic development among other topics. It is important to understand that the Comprehensive Plan is an adopted guideline and not a law or regulatory tool. The Plan provides specific recommendations on land use tools that should be implemented, *maintained, or enhanced* to further the Plan's Goals, Objectives, and Policies. These tools can come in the form of regulations, such as changes to the County Code or Zoning and Subdivision Ordinances. They can also come in the form of more detailed plans such as the *implementing component plans*, or in programs and processes such as a Capital Improvement Planning program. Implementing the Plan's recommendations via these tools is the most critical element to ensure that the Plan's strategies are followed.

The County's Planning Commission is charged with preparing the plan and presenting it to the Board of Supervisors for consideration. The Code of Virginia requires local jurisdictions to adopt comprehensive plans in accordance with §15.2-2223:

The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

In the preparation of a comprehensive plan, the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities.

The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature, including any road improvement and any transportation improvement, shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.

~~Most recently, the General Assembly mandated that comprehensive plans include transportation plans with new requirements including coordination with the Statewide Transportation Plan, Six Year Improvement Program, and route locations selected by the Commonwealth Transportation Board. The transportation plan components must also be provided to the Virginia Department of Transportation (VDOT) to be reviewed for consistency with the aforementioned elements before the plan is adopted by the locality. Urban development areas (UDAs), a previously mandated component for certain jurisdictions, have now been made optional by the General Assembly.~~

Form and Function of the Clarke County Comprehensive Plan

The Comprehensive Plan consists of two components – a base Plan document and various **i**mplementing **c**omponent **p**lans. The base Plan document contains background information on the County's history and characteristics, demographic and statistical information, and general goals, objectives and policies. The **i**mplementing **c**omponent **p**lans are separate specialized documents that provide detailed implementation strategies on specific topic areas outlined in the base Plan.

Code of Virginia §15.2-2230 requires planning commissions to review their comprehensive plans at least once every five years in order to determine whether it is advisable to make changes to the plan. ***This requirement applies to the County's Comprehensive Plan and to each of the component plans as they are also considered to be part of the Comprehensive Plan. The current Comprehensive Plan was adopted in March 2014 and the Planning Commission adopted a resolution in January 2019 to initiate a review and update of the Plan. There is no requirement in the Code of Virginia regarding when a comprehensive plan review must be***

completed.

~~The Planning Commission began their review and update of the 2007 Plan in Summer 2012 with the adoption of a work plan that designated the Commission as a “committee of the whole” for the review of the base Plan document. Upon the adoption of the revised base Plan document, attention will be turned to the review and update of the Implementing Component Plans along with the drafting of any new Component Plans recommended in the revised base Plan document. To ensure the efficient review of the Component Plans, the use of subcommittees is recommended so that multiple Component Plans can be worked on in tandem.~~

The base Plan document consists of three Chapters – General Information (Chapter I); Goals, Objectives, and Policies (Chapter II), and Implementing Components (Chapter III). ~~The revised Plan document includes new appendices that include detailed background information on the County and additional statistical information—some of which were moved from other sections in the 2007 Plan to make the Plan more readable. Chapter I contains factual information about the County including its history and historic resources, its unique environmental resources and characteristics, and a summary of the County’s approach to growth management. Chapter I also contains statistical information of the County’s population and growth trends, housing patterns, and land use.~~

Goals, Objectives, and Policies

Chapter II contains the Plan’s guidance language, recommendations, and implementation strategies addressing key topic areas including:

- *Agriculture*
- *Mountain resources*
- *Natural resources*
- *Historic resources*
- *Conservation easements*
- *Outdoor recreational resources*
- *Energy conservation and sustainability*
- *Village plans (Millwood, Pine Grove, White Post)*
- *Designated growth areas for development*
- *Economic development*
- *Public infrastructure, capital improvement planning, and fiscal responsibility*
- *Transportation*
- *Broadband internet access*

Guidance language is described in a goals/objectives/policies format. Goals of the Comprehensive Plan describe the future of Clarke County in general terms and are the long-term expectations of this Plan. ~~The goals for land-use planning in Clarke County are listed below.~~

- ~~1. — Preserve and protect the agricultural, natural, and open-space character of unincorporated areas.~~

- ~~2. Enhance town, village, and commercial areas through context sensitive design and walkability elements to improve the quality of life for all residents.~~
- ~~3. Encourage and maintain a diverse and viable local economy compatible with the County's size and character.~~
- ~~4. Exercise stewardship over resources so as to reduce the consumption of nonrenewable resources, utilizing renewable energy whenever possible; and foster within the private sector of the County a culture of resource conservation.~~
- ~~5. Provide for the economical delivery of necessary public services consistent with these goals.~~

~~Objectives are more specific expressions of these goals. They describe the County's intended planning actions *in the format of the key topic areas listed above*. Policies are specific statements, *directives, or strategies* for each planning objective. They provide the rationales for land-use decisions and help to guide them. ~~The objectives and policies can be found in Chapter H.~~~~

~~Implementing Components of the Comprehensive Plan~~

~~To achieve these Goals, Objectives, and Policies, implementation of the Clarke County Comprehensive Plan has been divided into seven components pertaining to specific geographic and policy areas. It is through these implementing components that the aspirations of the citizens are achieved and the elements of the Plan are realized.~~

~~*Chapter III contains descriptions of the Comprehensive Plan's implementing component plans. As noted previously, implementing component plans are a series of specialized plans that address specific geographic areas or policy issues. Component plans are developed from various applicable goals, objectives, and strategies in the Comprehensive Plan. Each component plan contains its own goals, objectives and/or strategies (similar in structure to the Comprehensive Plan's Goals, Objectives, and Policies) which go into greater detail on the geographic area or policy issue than can be accomplished succinctly in the Comprehensive Plan. Some component plans are described as "action-oriented," meaning that the component plan's recommendations are primarily composed of specific action items such as tasks or projects to complete or milestones to be achieved.*~~

~~*Component plans are reviewed once every five years and the update processes are informed by the Comprehensive Plan's guidance and by guidelines enumerated in Chapter III. The Chapter also includes a section describing other plans and studies adopted or used by the County noting that while they are not part of the Comprehensive Plan, all such plans and studies must be developed and maintained in accordance with the Comprehensive Plan's guidance.*~~

~~*It should be noted that in conjunction with this Comprehensive Plan revision, the County's Economic Development Strategic Plan and Capital Improvement Plan are to be removed as implementing component plans. These plans require more frequent review and update than*~~

once every five years and will continue to be maintained in accordance with the Comprehensive Plan's guidance.

Brief summaries of the component plans are provided These components can be found in Chapter III of the Comprehensive Plan and are briefly described below.

Geographic Area Plans – Rural Areas

Agricultural Land Plan

The purpose of the Agricultural Land Plan is to provide tools and approaches for conserving farmland, and to establish and maintain policies and programs for the long-term prosperity of the County's agricultural industries. It is recommended to be used by property owners, elected and appointed officials, and other interested stakeholders to understand the County's approach to protecting and promoting agriculture. The Agricultural Land Plan's recommendations are applicable to all areas of the County where agricultural operations exist and are allowed by-right.

~~Clarke County has been, and continues to be, a predominantly rural and agricultural environment. Agriculture is the defining characteristic of the County. It is Clarke County's most significant economic, cultural, and historic feature. The preservation of agricultural lands is promoted and encouraged by the Agricultural Land Plan as it seeks to perform the following items:~~

- ~~1. Minimize the impact of nonagricultural residential development.~~
- ~~2. Minimize the size of parcels created for residential purposes in rural areas.~~
- ~~3. Keep residual tracts as large, and therefore as agriculturally viable, as possible.~~
- ~~4. Provide for residential growth within the designated growth areas.~~

Mountain Land Plan

The Mountain Land Plan was developed to address the unique challenges and policy issues facing the County's mountain areas located east of the Shenandoah River. While this rural area allows agriculture by-right, forestal resources predominate and present challenges in protecting scenic viewsheds, wildlife habitats, and ecosystems. The mountainous terrain also presents challenges of protecting surface water resources from erosion and sedimentation. This component plan attempts to address these issues while simultaneously balancing private property rights and the demand for access to the area's natural and scenic resources.

~~The mountain lands of Clarke County to the east of the Shenandoah River constitute approximately one-fourth of the County. The steep slopes and predominantly forested areas create special land-use concerns that require specific land-use planning. The Mountain Land Plan is designed to protect the scenic values, forest resources, surface and groundwater quality as well as wildlife habitats of the area, while allowing well-sited development compatible with these concerns.~~

Geographic Area Plans – Designated Areas for Growth

Berryville Area Plan

The Berryville ~~area~~ *Annexation Area, which includes lands jointly identified by the Town and County for future development to be served by public water and public sewer, has been identified in the Comprehensive Plan as is the County’s primary* designated growth area ~~of the County~~. Because *the Town of Berryville* contains the highest concentration of available public facilities and infrastructure, it is the most appropriate place ~~for~~ *to direct future growth in an efficient and cost-effective manner*. The Berryville Area Plan ~~provides a guide~~ *guides* for the physical growth of ~~that area~~ *the Annexation Area and the orderly transition of properties from the County to the Town as development occurs*. The ~~overriding primary~~ purpose of this ~~Plan component plan~~ is to ~~encourage~~ *facilitate* development of a safe, vibrant, and distinctive small town environment, while maintaining the unique historical character of the community.

Double Tollgate Area Plan

The Double Tollgate Area Plan is one of two Business Intersections Area Plans created under the Comprehensive Plan’s guidance. This component plan focuses on the future commercial development of the area immediately surrounding the Double Tollgate unincorporated area at the intersection of U.S. Routes 340 and 522 and Va. Route 277. Strategies are included to address County investment in public infrastructure over time to facilitate highway commercial-scale development at this intersection.

Waterloo Area Plan

The Waterloo Area Plan is the second of two Business Intersections Area Plans and focuses on development issues and challenges at the unincorporated Waterloo area at the intersection of U.S. Routes 340 and 50/17. The Waterloo area is partially served by public water and public sewer, and strategies are included to facilitate the future build-out of highway commercial-scale businesses.

Business Intersections Area Plans

~~There are two intersections in the County of major arterial highways that are federally designated routes: Waterloo (U.S. Routes 50/17 and 340), and Double Tollgate (U.S. Routes 340 and 522). These intersections are uniquely suited for business activities that require auto or truck access. Area plans are necessary to help ensure that appropriate land is provided for such development, that the necessary utilities are available, and that the character of the development enhances the character of County.~~

Policy Issue Plans

Historic Resources Plan

The Historic Resources Plan is an action-oriented component plan focusing on the promotion and preservation of the County’s historic and cultural assets. Clarke County’s extensive historic resources play a large part both in attracting tourism and influencing land use decisions. The County encourages historic preservation through state and national programs and has conducted four area surveys to provide documentation of historic properties. *This component plan contains a list of specific goals to be implemented through the County’s Historic*

Preservation Commission (HPC) to further the County's historic preservation goals.

Recreation Plan

The Recreation Plan is the second of two new component plans developed as recommended by the 2013 Comprehensive Plan's guidance. This component plan contains specific recommended strategies to protect, promote, grow, and enhance the County's active and passive recreational resources. Its purpose is to address the community's recreational needs and outline steps to ensure the continued viability and enhancement of recreational resources for present and future generations.

Transportation Plan

Provision of a safe and efficient transportation network is critical to any community but it is also important to ensure that the community's transportation needs are compatible and coordinated with the land use philosophy. These needs are not limited to public roads but also extend to bicycle, pedestrian, and commuter networks. The Transportation Plan ~~describes~~ **provides a clear statement** of how the County's land use philosophy is coordinated with its transportation policies. The Transportation Plan also contains the County's current list of improvement projects along with planning level cost estimates and statistical information to support the need for each project.

Water Resources Plan

The Water Resources Plan was established to protect the County's groundwater and surface water resources and to raise attention to the unique challenges of preserving water quality and quantity in a County with significant Karst areas and mountainous terrain. The component plan contains specific goals and strategies to support regulatory protections, to guide land use decision-making, and to encourage ongoing initiatives to further these goals.

1) — Groundwater Resources

~~Three-fourths of the people in Clarke County depend on groundwater as their source of drinking water. Protection of groundwater from pollution is, and has been, of primary importance. The urgent need for protection was vividly demonstrated in 1981, when, because of pollution, the Town of Berryville had to abandon the wells that provided its public water supply. In the early 1990s wells were polluted by benzene in the White Post area and fuel contamination has occurred in Pine Grove and the Shepherd's Mill Road area. These events underscored the need for protection of groundwater. The Groundwater Resources section addresses related issues, including minimizing contamination from non-point sources, protecting the Prospect Hill Spring water supply (the public water supply serving the businesses and residents in Boyce, Millwood, Waterloo, and White Post), and increasing public understanding of the sensitive nature of limestone geology and its susceptibility to contamination.~~

2) — Surface Water Resources

~~Surface waters include secondary streams or tributaries, such as the Shenandoah River, the Opequon Creek, and Spout Run (a state-designated trout stream). The Surface Water Resources section addresses related issues including surface water contamination from both point and nonpoint sources, off-stream water use, such as domestic supply and irrigation, and recreational uses. Point source pollution comes from specific, identifiable sources. Nonpoint source~~

~~pollution is caused by many diffuse sources, such as runoff, precipitation, or percolation.~~

Capital Improvement Plan

~~Public facilities are the infrastructure for Clarke County's essential services, including education, police and fire protection, social services, parks and recreation, and library services. Because the provision of public facilities can influence when and where development will take place, they are very important growth management tools. The intent of the Capital Improvement Plan is to provide an outline of potential public facility and services needs so the County can review these provisions and maintain adequate levels of services in a timely fashion. Most important, it promotes the effective provision of capital improvements consistent with the goals of the Comprehensive Plan.~~

Process for Amending the Comprehensive Plan

While not recommended, the Planning Commission and Board of Supervisors may consider a proposal to amend the Comprehensive Plan or any of the Implementing Components of the Comprehensive Plan outside of the scope of the Plan's five-year review cycle in accordance with Code of Virginia §15.2-2229 and other relevant sections.

A Comprehensive Plan amendment ~~should~~ **shall** demonstrate the following elements: a) preserving open space, farmland, natural beauty, and critical environmental areas, and/or b) improving the quality of life and services and directing development toward designated growth areas.

A Plan Amendment must also meet one of the following criteria.

1. The goals, objectives, or policies of the Comprehensive Plan or an implementing element of the Comprehensive Plan would be more effectively met or implemented, particularly by a concept of land development that was not foreseen by the Plan, if the Plan Amendment were approved.
2. The area surrounding the property in question has changed substantially since the review of the Comprehensive Plan or the applicable element of the Comprehensive Plan.
3. The **Virginia** General Assembly has adopted new requirements affecting comprehensive plans that must be implemented prior to the County's next five year review schedule.

The importance of the three criteria noted above are critical to ensure that such an amendment addresses a genuine change in conditions of the property, the County, or outside influences affecting the County, or to address a gap in the guidance or State regulatory compliance provided by the Plan and its Component Plans. Piecemeal **plan** **a**mendments should not be considered solely to address a land use change or other request that is in conflict with the Plan's recommendations.

Citizen Participation in the Planning Process

Each member of the Board of Supervisors is a citizen that is elected to office by the County's residents, and each member of the Planning Commission is a citizen that is appointed to serve by the Board of Supervisors. Together with County employees in the Department of Planning,

County Administration, and other key departments, these entities are responsible for managing the County's planning processes.

The Code of Virginia requires the Planning Commission and Board of Supervisors to hold duly advertised public hearings in order to adopt changes to the Comprehensive Plan and implementing component plans. While this minimum requirement ensures that residents, business owners, and other interested stakeholders have at least two opportunities to provide formal comment on proposed changes, additional public input using both formal and informal methods is important in order to produce a well-rounded planning product as well as to facilitate understanding and to achieve buy-in.

Methods to inform and educate the public and to encourage their participation in planning processes include but are not limited to:

- 1. Schedule informal public information sessions prior to conducting required public hearings which allow participants to learn about plan revisions and provide questions and comments to elected and appointed officials and Staff on a one-on-one basis. Sessions can be scheduled in multiple locations around the County as a means of facilitating attendance and participation.*
- 2. Hold workshops or planning charrettes for major revisions or development of new plans that allow citizens and stakeholders to participate in and interact directly with the planning process at its earliest stages.*
- 3. Ensure that information pertaining to the Plan and the planning process is available to citizens in an understandable form, which may include internet postings, newsletters, mailings, informational brochures, and announcements in newspapers and on radio to stimulate citizen involvement.*
- 4. Encourage educational institutions, agencies, clubs, and special interest groups to review and comment on the Comprehensive Plan and implementing components.*
- 5. Following plan adoption, ensure uniform interpretation, administration, enforcement procedures, and staffing levels for the implementing plans, policies, and ordinances of the Comprehensive Plan.*

~~Encourage citizen involvement in the planning process.~~

Policies

- ~~1. Provide opportunity for citizens to participate in all phases of the planning process.~~
- ~~2. Require that all meetings involving preparing, revising, or amending the Comprehensive Plan be publicly posted and open to the public.~~
- ~~3. Meet or exceed all state requirements for public notice for meetings and freedom of information requests.~~

Scope of the Current Plan Revision

As noted above, the Planning Commission adopted a resolution in January 2019 to initiate a review of the Clarke County 2013 Comprehensive Plan. This resolution included the following key issues to be addressed during the revision process in addition to any other issues identified by the Commission:

- 1. Evaluate the current Goals, Objectives, and Strategies for relevance and consistency with recent implementing component plan updates. Consider adding or revising language to address any new County priorities such as broadband internet access for residents and businesses.*
- 2. Update demographics and statistical information that have changed since 2013 and for which new data is currently available.*
- 3. Determine whether to incorporate data or other information from the Cost of Community Services Study.²*
- 4. Update implementing component plan descriptions in Chapter III to reflect recent updates of these Plans.*
- 5. Evaluate whether to conduct a comprehensive review and update of the Mountain Land Plan and, if so, develop objectives and strategies that will inform the update process.*
- 6. Determine whether to retain reference to the Capital Improvement Plan as an implementing component plan and make changes to the applicable objectives and strategies as necessary.*

In addition to addressing these and other issues, All demographic information has been updated in Chapter I using a variety of primary sources including ~~to include the data provided in the 2020 2010~~ US Census, 2019 American Community Survey, as well as current and projected information provided by the University of Virginia’s Weldon-Cooper Center, and the Virginia Employment Commission (VEC), West Virginia University’s Bureau of Business and Economic Research, US Bureau of Labor Statistics, and Clarke County Planning Department records.

Work on the Comprehensive Plan revision was assigned to the Commission’s Comprehensive Plan Committee. Because of delays due to work on other planning projects and the COVID pandemic, the Committee and Staff were not able to begin work until June 2020. A final draft was completed and presented to the full Commission for final review on May 3, 2022.

² *The Cost of Community Services Study (developed in 2018 by the University of Virginia’s Weldon-Cooper Center) examines the cost to the County of providing public infrastructure and services to the various land-uses in the County.*

CHAPTER I

General Information

A. COUNTY PROFILE

Clarke County was formed in 1836 from Frederick County, *Virginia and was named for Revolutionary War hero George Rogers Clark*. It remains primarily a rural, agricultural county, continuing a tradition begun in colonial times. ~~The County is bounded on the east by Loudoun County and the crest of the Blue Ridge Mountains, on the west by Frederick County and the Opequon Creek, by Warren County to the south, and by Jefferson County, West Virginia, to the north. The County is bounded on the east by Loudoun County at the crest of the Blue Ridge Mountains. To the west, the County borders Frederick County, Virginia and Opequon Creek. To the south, the County borders Warren County and Fauquier County. To the north, the County borders Jefferson County, West Virginia.~~

Clarke County has a population of ~~14,034~~ *14,783* (2010 ~~2020~~ U.S. Census). Nearly three-fourths of the ~~174~~ *178* square miles (~~111,360~~ *114,103* acres) of the County is west of the Shenandoah River. *Within the western portion of Clarke County, the Town of Berryville consists of 1,449 acres, and the Town of Boyce consists of 230 acres. The remaining 112,425 acres are unincorporated. The County's total land area increased by a negligible amount as a result of a 2020 boundary line adjustment agreement with Warren County and improved accuracy in mapping the County's boundaries in various locations.*¹

~~The western section of the County contains two incorporated towns, Berryville and Boyce.~~ Located 10 miles east of Winchester and Interstate 81, Berryville, the county seat, has a population of ~~4,185~~ *4,574* (2010 ~~US Census~~ *2020 DEC Redistricting Data, US Census*). Berryville is situated at the intersection of U.S. Route 340 (Lord Fairfax Highway) and Virginia Route 7 (Harry Byrd Highway). *Virginia* Route 7 serves as the main east-west corridor for the northern half of the County. U.S. Route 340 serves as the County's main north-south corridor.

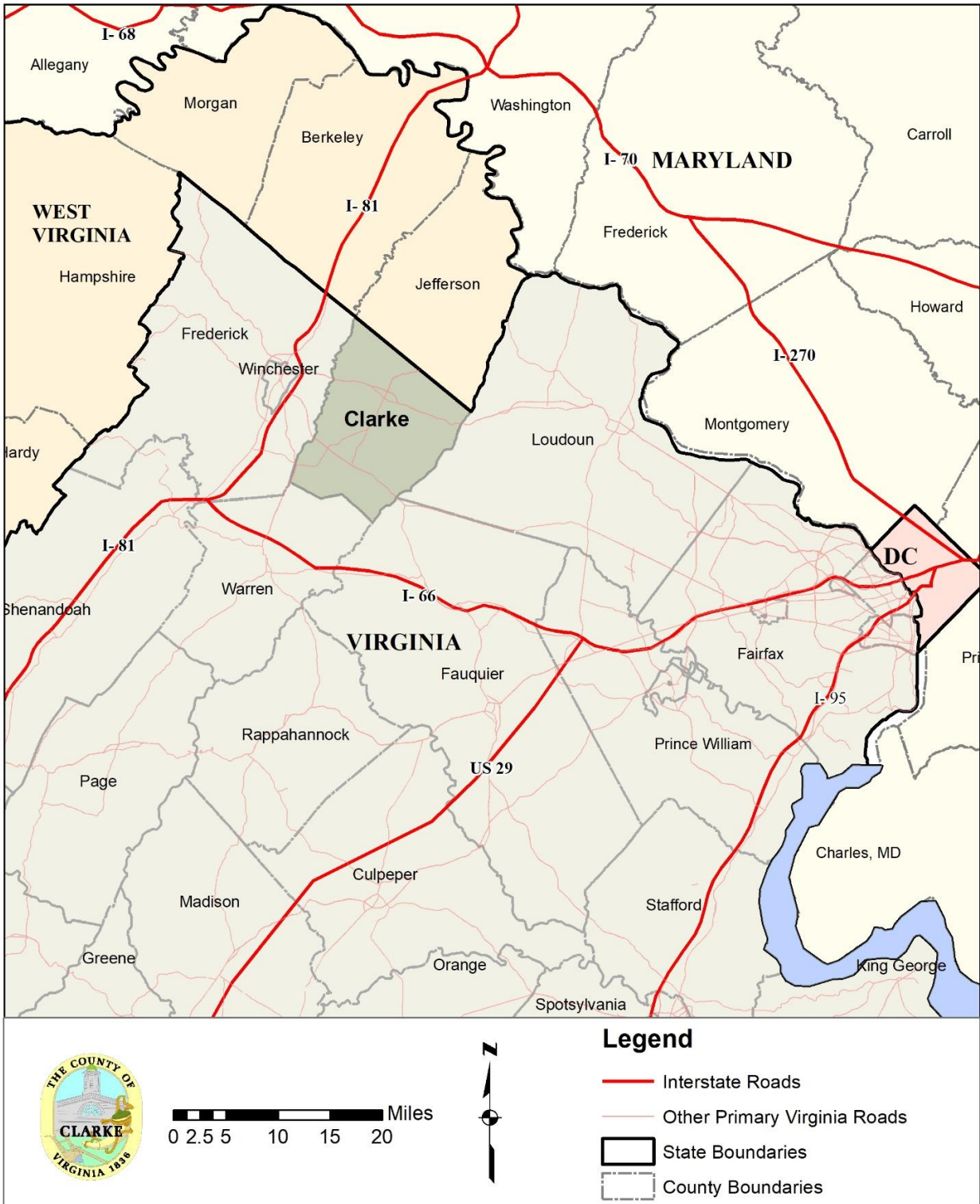
~~The Town of Boyce, with~~ has a population of ~~589~~ *749* (2010 ~~US Census~~ *2020 DEC Redistricting Data, US Census*).; Boyce is located ~~on~~ *along* U.S. Route 340, approximately 1 1/2 miles north of U.S. Route 50/17 (John Mosby Highway). U.S. Route 50 is the main east-west corridor for the southern half of the County.

~~Clarke County is located 40 miles west of Washington Dulles International Airport, which provides easy access to both passenger and freight air service. Washington, D.C. lies 20 miles further to the east.~~

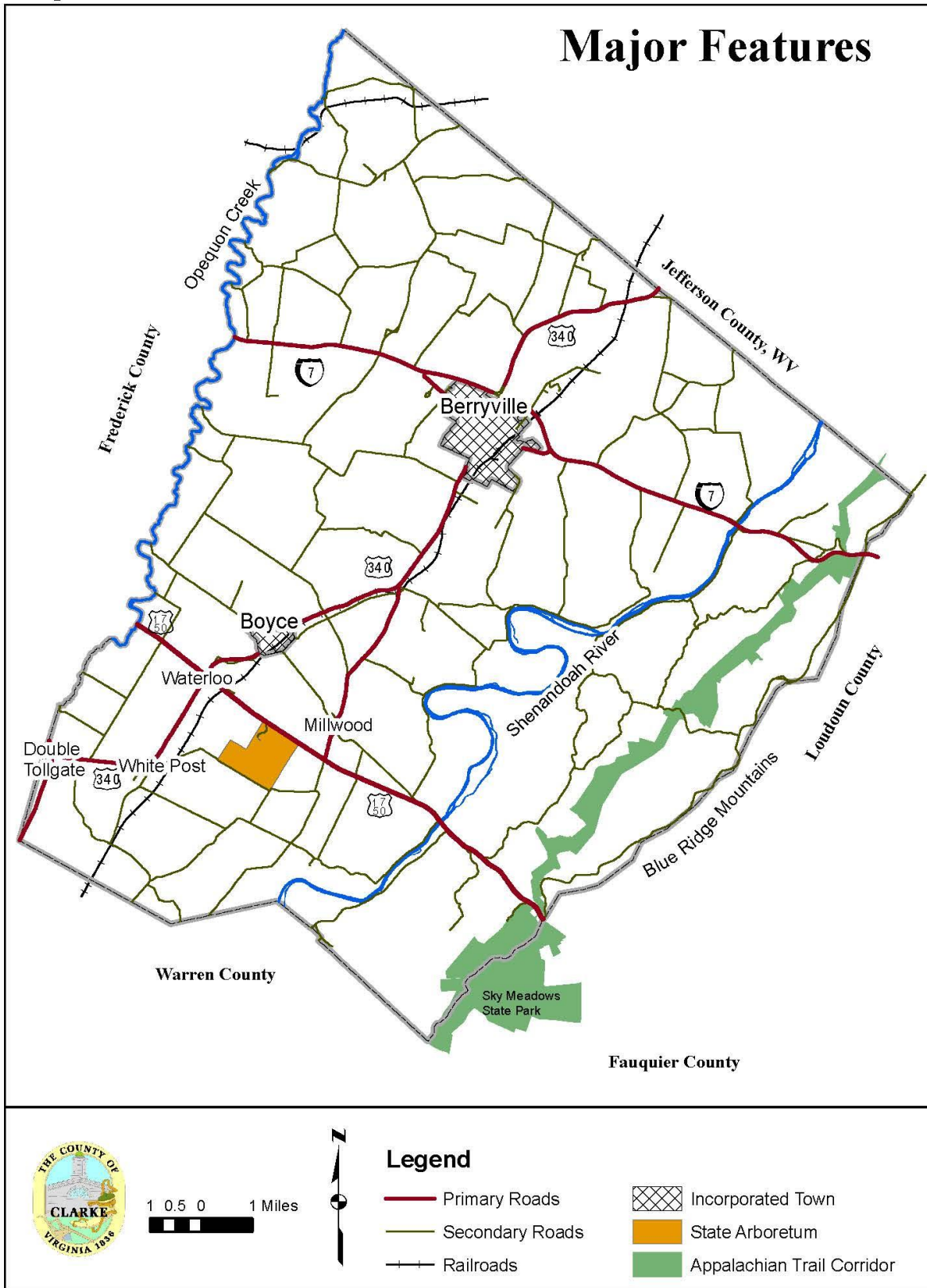
Clarke County is located *within the Washington metropolitan area. Washington Dulles International Airport is located only 40 miles to the east. It provides access to both passenger and freight air service. Washington, D.C. is positioned 60 miles to the southeast of Clarke County.*

¹ *The 2014 Comprehensive Plan listed the County area as 174 square miles (111, 360 acres). This appears to be due to the area of the Towns of Berryville and Boyce and the area of the Shenandoah River being excluded from the total land area.*

Map 1, Regional Vicinity



Map 2



B. ENVIRONMENTAL RESOURCES

1. Geology

Clarke County is located at the junction of two distinct *physiographic* regions¹ (See Map 3). *The western portion of the County is located within the Shenandoah Valley region, also referred to as the Valley and Ridge, or simply the Valley region. Bedrock within this region was formed between 443-542 million years ago. The eastern portion of the County is located within the Blue Ridge region. Bedrock within this mountainous region was formed between 600-900 million years ago.*

~~The Shenandoah Valley and the Blue Ridge physiographic provinces create two different hydrogeologic regions underlain by characteristic bedrock types. Bedrock in the Valley region consists of carbonates (limestones and dolomites) and calcareous shales; in the Blue Ridge region, it consists of metamorphic basalt, sandstone, phyllite, quartzite, slate and shale. The rocks of the Blue Ridge are more resistant to weathering and erosion, and this resistance is expressed in the more mountainous terrain, compared to the Valley region.~~

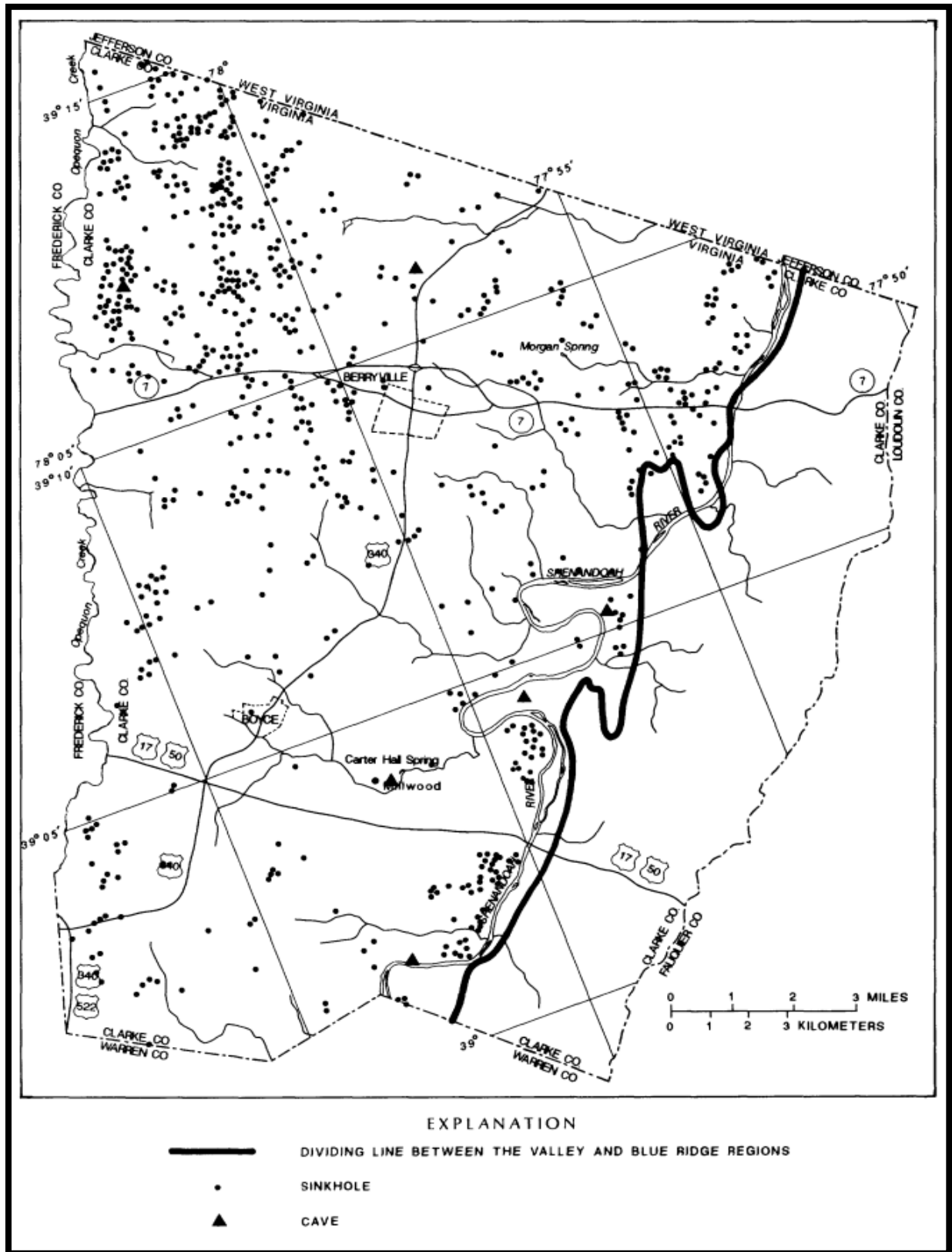
The Shenandoah Valley physiographic region is generally located west of the Shenandoah River. Bedrock in this region consists of carbonates, including limestone, gypsum, dolomite and calcareous shales. These carbonates are relatively soluble in comparison to other rocks. Over millions of years, the bedrock in the Shenandoah Valley has eroded to create a karst landscape, including underground drainage systems, sinkholes and caves.

East of the Shenandoah River is within the Blue Ridge physiographic region. The Blue Ridge region includes metamorphic rocks, including sandstone, phyllite, quartzite, slate and shale. Metamorphic rock is generally hard and dense, with a low solubility. As a result, erosion is a slower process than in the surrounding bedrocks, creating a terrain that is characterized by steep slopes and higher elevation.

A more detailed discussion of the County's geology is included in the Geological Profile Appendix.

¹ *Physiographic regions, also referred to as physiographic provinces, are large areas that share similar relief and landforms shaped by common geomorphic processes and geological history.*

Map 3 –County Physiographic Regions



Source: Ground-Water Hydrology and Quality in the Valley and Ridge and Blue Ridge Physiographic Provinces of Clarke County, Virginia, U.S. Geological Survey, Water-Resources Investigations Report 90-4134 (1990), Page 14

2. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types. This is due to the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient metamorphic and sedimentary rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

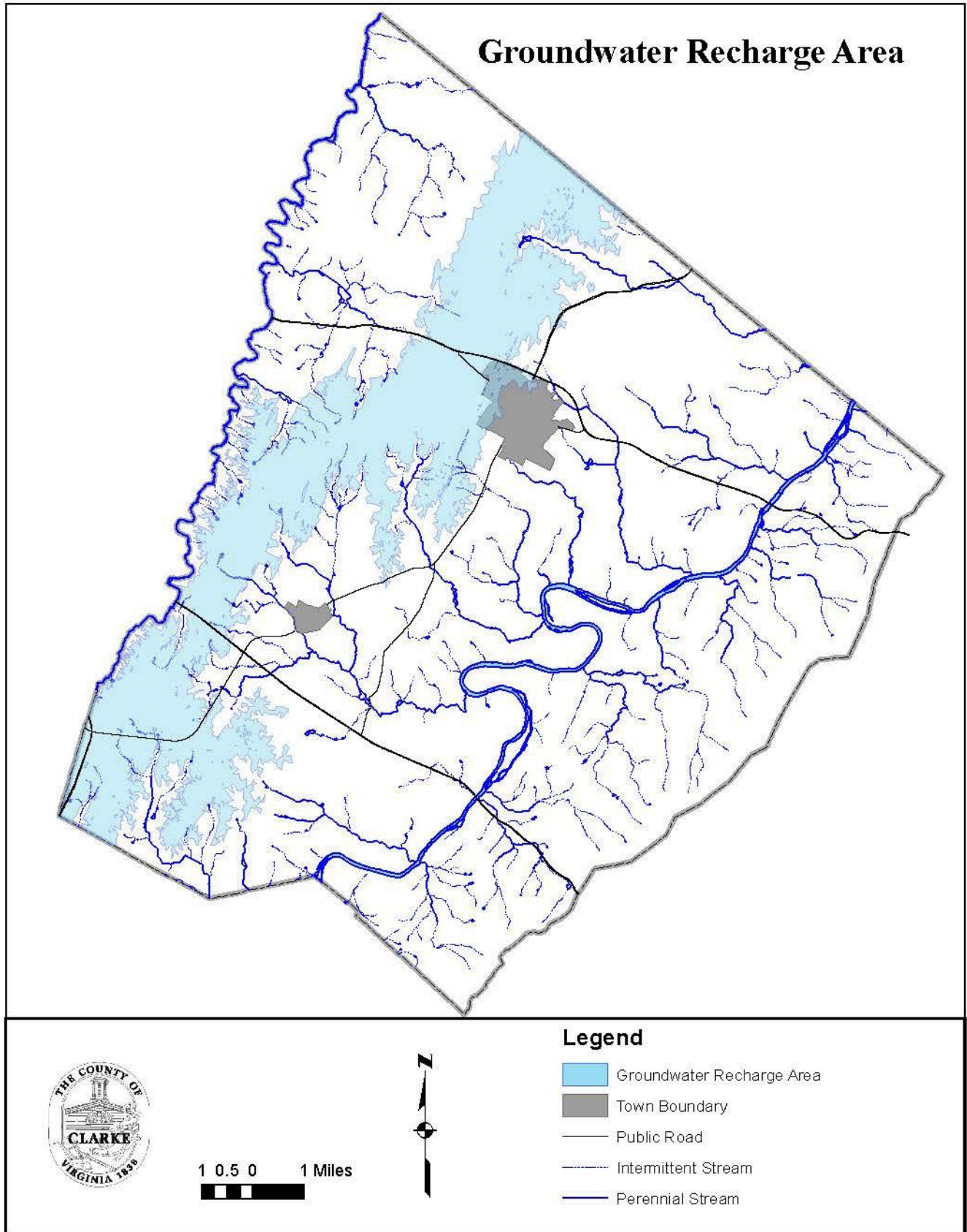
Aquifer recharge is much more rapid in the Eastern Lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and dolomite rock is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.

The drought of 1999-2002, followed by a period of rapid development, drew greater attention to the quantity, quality and sustainability of groundwater resources in Clarke County. Between 2002 and 2008 the U.S. Geological Survey, in cooperation with Clarke County, conducted a study that described the hydrogeology and groundwater availability in Clarke County. The study highlighted the susceptibility of the karst portions of the county to weather cycles, particularly the amount and timing of rain and the occurrence of winter precipitation including snow. Protecting recharge throughout the valley region is important for maintaining adequate levels in water wells in addition to sustaining surface flow in streams, as groundwater is the source for most of the surface water. All of the karst areas of the county are important for groundwater supply and are susceptible to groundwater contamination due to the presence of sinkholes and cracks and channels in the rock. A limestone ridge area, forming the divide between the Opequon Creek and Shenandoah River watersheds, was emphasized for groundwater protection due to the lack of surface runoff that occurs in the area and its potential for increased recharge. This limestone ridge is at a higher

elevation than its surrounds and experiences wider variation in groundwater levels, leading to more severe response to drought and wet weather. The findings of the 2002-2008 study culminated in Scientific Investigations Report 2010-5112 published by USGS in 2010.

In 2018, Clarke County adopted the Water Resource Plan, and implementing component of the Comprehensive Plan. The major takeaway of the Water Resources plan includes the establishment of sustainable policies that protect the quality and quantity of groundwater resources in Clarke County, particularly by protecting areas needed for groundwater recharge and identifying ways to prevent water contamination.

Map 4



3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphic and *the harder types of* sedimentary rocks of *in* the Blue Ridge *region* have been highly resistant to erosion, but *the* softer sedimentary rocks have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level ~~on the~~ *in the* Blue Ridge *region* to 360 feet *above sea level* at the Shenandoah River. ~~In the Eastern and Central lowland areas, the average elevation is about 600 feet. The average elevation in Clarke County is 659 feet above sea level.~~

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon Creek runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon Creek watershed covers 35 square miles (or 20%) of Clarke County.

~~Flooding of the Shenandoah River prompted the County, in 1960, to establish regulations governing land use within the 100-year floodplain and 10-year floodway. The Zoning Ordinance defines a 100-year flood as a flood that, on the average, is likely to occur once every 100 years (i.e., that has a one (1) percent chance of occurring each year, although the flood may occur in any year). A floodway is defined as the channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood that, on the average, is likely to occur once every 10 years (i.e., that has a ten percent chance of occurring each year). These regulations restrict building, structure, and drainfield location in floodplains.~~

In 1960, Clarke County first adopted floodplain regulations for land uses within areas prone to flooding. Regulation of floodplain areas ensures that residents are able to obtain flood insurance. The regulations also protect the public's health and safety by establishing standards that minimize loss of life, injuries and property damage during flood events.

Areas designated by the Federal Emergency Management Agency (FEMA) as special flood hazard areas are included within the regulated floodplain district. This special flood hazard area includes the area of one percent (1%) chance of flooding each year, more commonly referred to as the 100-year floodplain. Within the 100-year floodplain is the floodway. The floodway is the portion of the 100-year floodplain that is necessary to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. For the purpose of protecting water sources, Clarke County has also established a 10-year floodplain where onsite sewage systems are prohibited.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. A map of the soil types, detailed descriptions, and percentages of County land area covered by each type are included in the Geological Profile Appendix.

C. HISTORY AND HISTORIC RESOURCES

Native Americans inhabited the area of Clarke County for centuries before the first *European settlers arrived* ~~Europeans, some with their African slaves, settled the region~~. Several prehistoric archeological sites have been discovered on the banks of the Shenandoah River in Clarke County, and records indicate that there are potentially thousands of such sites throughout the County. ~~Native Americans passed through the Shenandoah Valley, a major trade route between present-day New York and Georgia. A significant Native American pathway traversed through the region of the Shenandoah Valley, used for both trade and warfare. This route was named the Warrior's Path and was later used by early settlers from Europe.~~

The ~~names of the~~ Shenandoah River (“~~Daughter of the Stars~~”) and the Opequon Creek, *originated from the Native American languages* ~~names are Indian named, reflecting the heritage of the County's indigenous people. Although few Native American groups were resident in the Shenandoah Valley at the time of European settlement, the area remained within the territorial organization of tribes to the north and west. One theory is that the word “Shenandoah” means “Spruce Forest.” A great spruce tree forest used to exist along the waters of the river. However, a more popular theory is that the word means “Daughter of the Stars.” This was allegedly the name given to the river by Native Americans because you could see the stars in the calm blue waters.~~

~~Europeans first came into the Shenandoah Valley in the early 1700s. Thomas Fairfax, Sixth Baron Fairfax of Cameron (1693–1781), was the proprietor of the Northern Neck of Virginia as heir to the 1688 royal charter to the land between the Rappahannock and Potomac Rivers. Just less than half of Clarke County was part of a 50,212-acre grant given as payment by Lord Fairfax in 1730 to his agent Robert “King” Carter, the wealthiest and most prominent landholder in the Tidewater of Virginia. The remaining area of the County was distributed in smaller grants, either by the Council of Virginia or Lord Fairfax, or retained by him as the Manor of Greenway Court (his home after 1752) and as the Manor of Leeds. Several buildings and structures of the Greenway Court complex remain, including the 1761 Land Office. The village of White Post, near Greenway Court, grew up around the prominent post directing new settlers to Greenway Court. By tradition, the first post was erected in the early 1750s by George Washington, then a surveyor for Lord Fairfax.~~

The territory that would become Clarke County was first demarcated under the Treaty of Albany in 1722. This was a treaty signed in Albany, New York by leaders of the Five Nations of Iroquois, Province of New York, Colony of Virginia, and Province of Pennsylvania. The Five Nations of Iroquois laid claim to the territory, but agreed to use their influence to protect the British colonies from attacks by hostile Native American tribes.

Following the Treaty of Albany, the first settlements began to arrive to the area that is now Clarke County. These settlers primarily consisted of people from Germany, Ireland, Scotland, Denmark and England. Africans also arrived during this period due to the system of slavery that existed during this time period.

Thomas Fairfax, sixth Baron Fairfax of Cameron (1693-1781), was the proprietor of the lands of Clarke County, who inherited it from his mother, the daughter of Lord Culpeper. Lord Fairfax granted some of the lands of Clarke County to himself, including what would become the Manor of Greenway Court (his home after 1752) and the Manor of Leeds. Several buildings and structures of the Greenway Court complex still remain, including the 1761 Land Office. The village of White Post, near Greenway Court, grew up around the prominent post directing new settlers to Greenway Court. The first post was erected in the early 1750s by George Washington, then a surveyor for Lord Fairfax.

Lord Fairfax, whose territory extended from the Rappahannock River to the Potomac River, also granted lands to Robert “King” Carter, a wealthy and prominent landholder in Virginia. Carter’s land in Clarke County was mostly unavailable for settlement until the mid-1700s when it was divided into tenancies and rented out to farmers. With the end of the Revolutionary War in 1783 and the commercial decline of tobacco, settlers from the Tidewater, most of whom were Carter’s descendants, began to move to Carter’s land in greater numbers. The Tidewater families imported their lifestyle, their appreciation of stylish architecture, their wealth, and the slave system, all of which are reflected in the structures they built. One of the Tidewater settlers was “King” Carter’s great-grandson, Nathaniel Burwell, builder of Carter Hall, the leading plantation in the County. The village of Millwood, near Carter Hall, developed around a prominent commercial mill completed in 1786. It was operated by Burwell and Revolutionary War hero, General Daniel Morgan. The establishment of this and several other mills during the late eighteenth and early nineteenth centuries reflects the transition from tobacco planting to wheat farming by Tidewater families.

African slaves brought from the Tidewater made the settlement and production of large plantations possible in Clarke County. In the 1840 Census, over 50% of the County’s population was of African descent. ~~According to the 2010 Census, the percentage of African-Americans in the County had dropped to 5.3%. According to the 2019 American Community Survey, estimates indicate that the percentage of African-Americans in Clarke County is 4.7%.~~

Pioneers migrating south from Pennsylvania, New York, New Jersey, and Maryland in search of rich farmlands formed the broad pattern of European settlement ~~of the Lower in the northern~~ Shenandoah Valley. These people were, for the most part, Scots-Irish, English Quakers, and Germans, ~~and. †~~They settled in the portion of the northern Shenandoah Valley that today is known as Frederick County and, to a lesser extent, in what is now Clarke.

~~Clarke County was part of Orange County until 1738, when Frederick County was established out of Orange, remaining part of Frederick County until 1836 when it became a separate entity. The socio-economic differences between what is now Clarke and the rest of Frederick County and the considerable distance to the county seat in Winchester contributed to the separation of Clarke County from Frederick.~~

Clarke County was founded on March 8, 1836 and was named after the Revolutionary War hero

George Rogers Clark but from its inception the name was misspelled with an extraneous “e.” The County was created from the eastern portion of Frederick County. The socio-economic differences between what is now Clarke and the rest of Frederick County and the considerable distance to the county seat in Winchester contributed to the separation of Clarke County from Frederick. Prior to the formation of Frederick County in 1738, the lands of Clarke County were located within the boundaries of Orange County.

The Civil War brought an abrupt end to any new construction and growth in Clarke County. The Battle of Cool Spring and several skirmishes took place in the County, and troops were constantly passing through the area. Numerous buildings, including houses, barns, and mills, were destroyed during the period. The Shenandoah Valley provided Confederate troops with food and grain and became known as the "breadbasket of the Confederacy."

Reconstruction came slowly ~~and there was little growth in the County until the 1880s when the Shenandoah Valley Railroad (now Norfolk Southern) was constructed and provided improved access to larger markets.~~ after the Civil War, but was stimulated by transportation improvements in the late nineteenth century and throughout the twentieth century. This included the establishment of the Shenandoah Valley Railroad (now Norfolk Southern Railroad) in the 1880s. Later improvements to major highways, such as US Route 50, Virginia Route 7, and US Route 340 provided even greater connectivity to the larger markets in the region, including the booming area surrounding the nation’s capital.

Clarke County was a highly productive agricultural county throughout the nineteenth century. According to 1860 census data, although Clarke was the smallest county in the Shenandoah Valley, it had the largest percentage of land in farms and ranked second in wheat production in the Valley. Wheat was the largest cash crop in the County until the early 20th century, when it was replaced by apple production.

Clarke County's abundance of bluegrass has long made it a desirable location for horse breeding. The Tidewater families brought their thoroughbreds with them and began a tradition of horse breeding that has continued to the present. By the beginning of the 21st century, apple production declined, while beef and dairy cattle and horses were the mainstays of the local agricultural economy.

Berryville, incorporated in 1798, is the largest town in the County. It was first settled in 1775 and was originally known as Battletown, due to its rowdy taverns. Its location at the intersection of major roads leading to Alexandria, Baltimore, and Winchester made it the commercial center of the County and insured its selection as the seat of County government. Boyce, the second town of the County, was incorporated in 1910. It was originally settled in 1880 at the crossing of the Millwood-Winchester Turnpike (now Route 723) and the newly built Shenandoah Valley Railroad (now Norfolk Southern).

Today, Clarke County remains primarily rural, and agriculture is still one of its main sources of income. Berryville is still the commercial, governmental, and manufacturing center of the County. In the late 20th century, people increasingly moved to the County to construct new homes in rural settings, as well as to restore older residences. In order to preserve the agricultural economy of the County and its rural character, the County enacted innovative land-use regulations in 1980. These regulations limited residential growth in rural areas and focused new housing in the Berryville area.

The large number and diversity of historic structures and buildings ~~accentuate~~ **complement** Clarke County's rural and agricultural environment. A Countywide archeological assessment was completed in 1993 to survey the Native American presence. Possible sites of several palisade villages were located, as well as thousands of individual dwelling sites. All pre-World War II structures were also documented with reconnaissance-level surveys. A total of 962 historic properties were identified (each of which may include several structures), dating from the early 1700s through 1941 in the rural portion of the County. From approximately the same period, 236 historic structures and buildings were identified in Berryville, 100 in Boyce, 58 in Millwood, and 28 in White Post.

~~As a follow-up to the general identification of historic properties, more than 30% of the County has been placed on the Virginia Landmarks Register and the National Register of Historic Places, including the historic districts of Greenway (30 square miles), Long Marsh (16 square miles), Cool Spring Civil War Battlefield (6 square miles), Berryville (150 acres), Boyce (102 acres), White Post (30 acres), Bear's Den (1,900 acres) and 28 individually listed structures. The County is currently working to add the Chapel Rural Historic District which would consist of 16,700 acres. In addition, Greenway Court (the 1750 home of Lord Fairfax) and Saratoga (the 1780 home of Daniel Morgan) have been designated National Historic Landmarks, the highest level of national recognition for an historic property. The County is also part of the John Singleton Mosby Heritage Area, the first heritage area designated in Virginia. This Heritage Area approximates "Mosby's Confederacy," to encompass parts of six counties, of which Clarke is the only county included in its entirety.~~

As a follow-up to the general identification of historic properties, approximately half of Clarke County has been placed on the Virginia Landmarks Register and the National Register of Historic Places. This includes 11 historic districts and 27 individually listed buildings. Historic Districts in Clarke County that are on the Virginia Landmarks Register and National Register of Historic Place include the following:

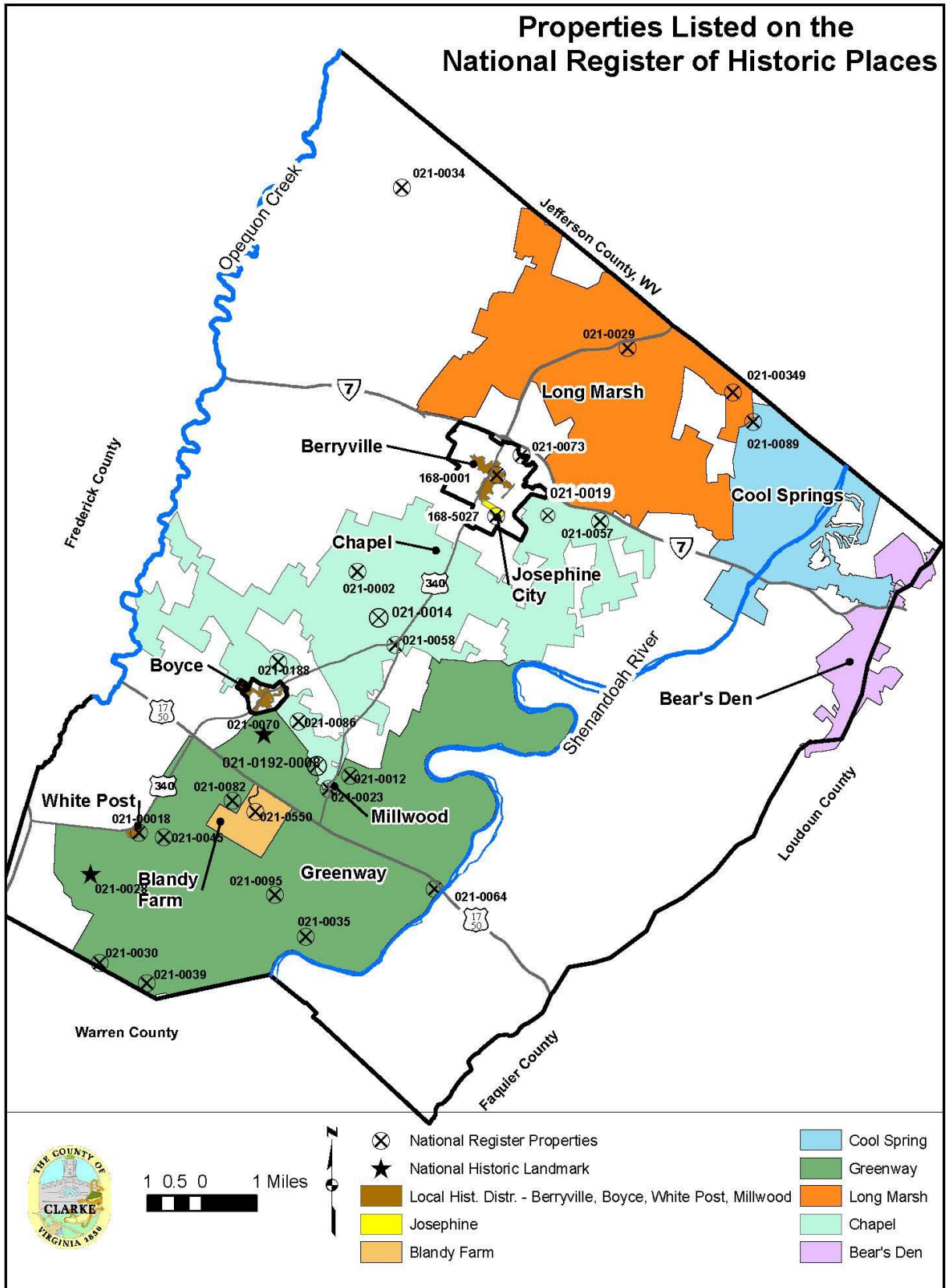
- *Bear's Den Rural Historic District (1,855 acres)*
- *Berryville Historic District (150 acres)*
- *Blandy Experimental Farm Historic District (712 acres)*
- *Boyce Historic District (102 acres)*
- *Chapel Rural Historic District (11,496 acres)*
- *Cool Spring Battlefield (4,064 acres)*
- *Greenway Rural Historic District (19,107 acres)*
- *Josephine City Historic District (40 acres)*
- *Long Marsh Rural Historic District (10,293 acres)*
- *Millwood Commercial Historic District (4.32 acres)*
- *White Post Historic District (30 acres)*
- *Total Area – 47,853.32 acres*

Individual Buildings in Clarke County that are on the Virginia Landmarks Register and National Register of Historic Places include the following:

- *Annefield*
- *Bethel Memorial Church*
- *Burwell-Morgan Mill*
- *Carter Hall*
- *Chapel Hill*
- *Old Clarke County Courthouse*
- *Cleridge*
- *Clermont*
- *Fairfield*
- *Farnley*
- *Glendale Farm*
- *Guilford*
- *Huntingdon*
- *Josephine City School*
- *Locke's Mill*
- *Long Branch*
- *Lucky Hit*
- *Meadea*
- *Millwood Colored School*
- *Mt. Bleak*
- *Norwood*
- *River House*
- *Saratoga*
- *Scaleby*
- *Smithfield Farm*
- *Soldier's Rest*
- *Stone's Chapel*

Greenway Court (the 1750 home of Lord Fairfax) and Saratoga (the 1780 home of Daniel Morgan) have been designated National Historic Landmarks, the highest level of national recognition for an historic property. The County is also part of the John Singleton Mosby Heritage Area, the first heritage area designated in Virginia. This Heritage Area approximates "Mosby's Confederacy," to encompass parts of six counties, of which Clarke is the only county included in its entirety.

Map 5



D. APPROACH TO GROWTH MANAGEMENT

Clarke County's heritage and natural characteristics, combined with its recreational, cultural, and educational opportunities, make it an attractive place to live, work, and visit. The Shenandoah River runs south to north through the County, dividing the primarily forested and mountainous land in the east from the rolling agricultural lands in the west. Used as a major transportation route during the nineteenth and early twentieth centuries, the Shenandoah has been designated a State Scenic River by the Virginia General Assembly and is one of the state's outstanding rivers. The Appalachian National Scenic Trail runs the length of the County, providing 10 miles of hiking along the Blue Ridge Mountains. The State Arboretum of Virginia is located at the University of Virginia's Blandy Experimental Farm near Boyce. The County's Parks and Recreation Department offers a wide variety of recreational opportunities. Nearly ~~20%~~ **24%** of the County (approximately ~~21,000~~ **27,111** acres) is under permanent conservation easement, permanently protecting farmland, forest, natural and historic resources, and open space by limiting development. Historic museums and public buildings include Clermont Farm (1770), the Burwell-Morgan Mill (1782), the Clarke County Historical Association Museum, the Clarke County District Courthouse (1839), the Long Branch House and Farm Museum (1809), and the Josephine School Community Museum (1881). More than 30% of Clarke County is within ~~five~~ **ten** National Register historic districts, and the entire County is in the John Singleton Mosby Heritage Area. Self-guided driving tours of these historic areas are available

For the past several decades, the County has been ~~challenged with balancing preservation of these unique resources with pressures for growth and development primarily from Northern Virginia. faced with the challenge of protecting its most valuable characteristics from increased pressures for growth and development. These pressures are primarily the result of urban sprawl coming from the Washington metropolitan area, particularly the counties in northern Virginia. As shown in the table below, To the east, Loudoun County to the east increased in population from 37,150 in 1970 to 312,311 420,959 in 2010 2020, the fastest growth rate in Virginia with a growth rate well in excess of 50% each decade during the period. Loudoun County was the fastest growing county in the nation in the first three years of the millennia. Since 2010, Loudoun County ranks 20th in growth among all counties in the United States with a population of 100,000 or more. Similarly, Although slowed somewhat by recession from 2007-2009, Frederick County and the City of Winchester to the west have grown from 48,322 in 1970 to 104,508 119,539 in 2010 2020 with growth rates in excess of 20% for all except one decade during the period. Growth in these jurisdictions, along with Warren County to the south and Jefferson County, WV to the north, is mostly attributable to the explosive growth experienced in Northern Virginia. Potential residents continue to seek a high quality rural lifestyle to look for more affordable homes away from the density and traffic of the urban core and to seek a high quality rural lifestyle. Clarke County lies directly in the path of this growth due to its proximity to major commuter routes (US 50/17 and VA Route 7) that convey traffic to and from the major employment centers to the east.~~

~~The County has been very aware of these pressures over the years and has implemented land use tools to ensure that development occurs on a controllable scale and only in designated areas where infrastructure can be provided in the most cost-effective manner. Sliding-scale zoning is the most prominent of these tools.~~

~~Sliding-scale zoning was implemented by the County in 1980 with the primary purpose being to preserve agricultural land and the rural character of the County. This has been accomplished by limiting the number of parcels that may be created, limiting the size of new parcels, and keeping~~

~~residual parcels as large as possible. Sliding scale zoning allocates dwelling unit rights (DURs) for parcels of land and specifies a maximum number of dwelling units that may be built in the Agricultural/Open Space/Conservation (AOC) Zoning District and Forestal/Open Space/Conservation (FOC) Zoning District. That number cannot be increased unless parcels are rezoned, but is decreased as landowners build houses or place their property under permanent open space easement. Hand in hand with this tool is the Plan's designation of the Towns of Berryville and Boyce as the only areas of the County appropriate for more suburban scale residential development due to the proximity of water and sewer infrastructure. These are the only areas where rezoning to a higher residential density could be considered.~~

With careful consideration and foresight, Clarke County established sliding-scale zoning in the 1980s. Sliding scale zoning regulations limit the number of new residential lots that can be subdivided from parcels in the Agricultural-OpenSpace-Conservation (AOC) and Forestal-Open Space-Conservation (FOC) Zoning Districts. This improves the effectiveness of other residential growth management policies and programs, such as regulations that control the maximum and minimum size of parcels, and the designation of residential growth areas in the Towns of Berryville and Boyce. The success of the County's conservation easement program is largely the result of sliding scale zoning. Approximately 24% of Clarke County's land area is in a permanent conservation easement. These policies and programs work in unison with sliding scale zoning to preserve agriculture and the rural character of the community. Furthermore, managing growth in designated areas allows public services to be provided with increased efficiency.

The chart below was adopted with sliding-scale zoning in 1980 along with the corresponding DUR assignments to parcels in the County at the time. The sliding-scale chart has remained unchanged since its adoption.

TABLE 1A – Sliding Scale Zoning/Dwelling Right Distribution

Size of Tract Permitted	Dwelling Unit Rights Assigned	Average Resultant Density
0-14.99 acres	1	1 unit/7.495 acre
15-39.99 acres	2	1 unit/13.748 acres
40-79.99 acres	3	1 unit/19.998 acres
80-129.99 acres	4	1 unit/26.249 acres
130-179.99 acres	5	1 unit/30.999 acres
180-229.99 acres	6	1 unit/34.166 acres
230-279.99 acres	7	1 unit/36.428 acres
280-329.99 acres	8	1 unit/38.124 acres
330-399.99 acres	9	1 unit/40.555 acres
400-499.99 acres	10	1 unit/44.999 acres
500-599.99 acres	11	1 unit/49.999 acres
600-729.99 acres	12	1 unit/55.416 acres
730-859.99 acres	13	1 unit/61.153 acres
860-1029.99 acres	14	1 unit/67.499 acres
1030 acres or more	15	1 unit/68.666 acres (max)

Sliding-scale zoning also provides for an accurate accounting of the residential build-out potential for the County. This accounting is an important tool to accurately project the County’s growth potential ~~and in making land use decisions on development proposals~~. *It also provides information that assists the County in making decisions on new development proposals.* Below are two tables that show the distribution of DURs to date according to zoning district and by election district. *A map of the election districts, also referred to as voting districts, is shown on the following page.*

TABLE 1B – Dwelling Unit Rights (DURs) Used and Remaining By Zoning District

Zoning District	DURs Allocated	DURs Remaining	% Remaining
AOC	4,465	2,286	51.2%
FOC	2,169	1,061	48.9%
TOTAL	6,634 ¹	3,347	50.5%

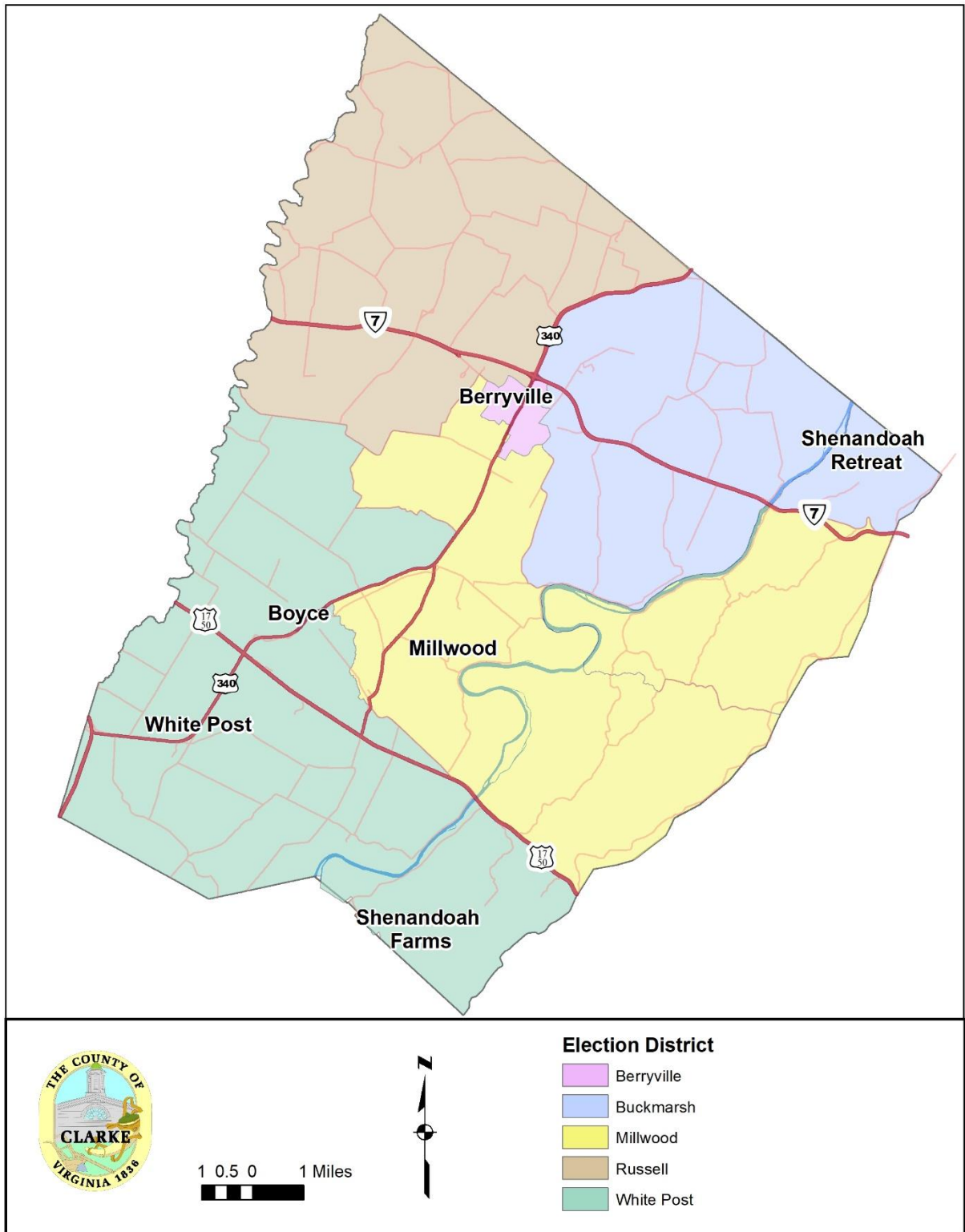
TABLE 1C – Dwelling Unit Rights (DURs) Used and Remaining by Election District

Election District	DURs Allocated¹	DURs Remaining	% Remaining
Berryville²	0	0	0
Buckmarsh	1,076	543	50.5%
Millwood	1,996	1,000	50.1%
Russell	1,586	627	39.5%
White Post	1,976	1,177	59.6%
TOTAL	6,634	3,347	50.5

¹ DURs were recalculated using available GIS data in 2022. The improved accuracy resulted in minor adjustments to the DURs allocated and remaining.

² DURs are not present in the Berryville Election District because there is no land zoned AOC or FOC within its boundaries.

Map 6 - County Election Districts



Another important growth management tool is the imposition of maximum lot size and average lot size requirements in the ~~Agricultural Open Space Conservation~~ **AOC Zoning** District (~~AOC~~). Over 90% of the County's land area west of the Shenandoah River is currently zoned AOC. Application of these requirements has resulted in DURs being redistributed via subdivision over small, rural-scale residential lots and large residual tracts. The maximum lot size in the AOC District is 4 acres and the average lot size (excluding the residual parcel) is 3 acres. As an example, a 100 acre parcel with 4 assigned DURs would not be permitted to be divided into four 25-acre tracts. The lot size requirements would instead produce a subdivision of three 3-acre lots and one residual 91 acre lot each with one assigned DUR **each per lot**. This design approach helps to facilitate land conservation and continued use of farmland.

The ~~Forestal Open Space Conservation~~ **FOC Zoning** District (~~FOC~~), located **east of between** the Shenandoah River **along and the crest of the** Blue Ridge, utilizes open space set aside requirements in lieu of maximum lot size requirements to manage growth. All subdivision of FOC land containing 40 or more acres must reserve a percentage of land in an open space residual parcel with one dwelling or one DUR. ***This allows for greater flexibility in lot design in comparison to the AOC District. The added flexibility is intentional to ensure that lots can be designed within the more extreme topographical conditions in a way that best protects the environment.***

A relatively newer tool used to encourage the preservation of land is the County's conservation easement program. A conservation easement is a voluntary agreement between a landowner and an easement holder (either a private organization, a state entity such as the Virginia Outdoors Foundation, or Clarke County) to place a property or group of properties in a permanent conservation state with very limited options to develop in the future. In many cases, limitations on development comes in the form of reducing available DURs by allowing only one primary dwelling and an accessory dwelling as a condition of the easement.

State agencies and land trusts for many years have worked with County property owners to voluntarily place lands in conservation easement. In 2002, the County became an active participant in easement acquisition by establishing an easement program and creating a Conservation Easement Authority to oversee the program. Easements are accepted by the County on a voluntary basis but the County, through the Easement Authority, also purchases certain easements that have conservation value such as prime soils for agriculture, historic or natural resources, or that would result in the retirement of DURs. Property owners that choose to place their land in easement and forego **any certain** development potential gain certain tax benefits in addition to Federal, State, local, or private funds if they qualify for easement purchase.

The **following** tables **below** outline ~~conservation easement activity in the County since 1974~~ **historic data on the conservation easement activity in Clarke County.**

TABLE 2A – Conservation Easements Added/Dwelling Units Retired, 1974-2011

YEAR	VOF, OTHERS (acres)	COUNTY (acres)	DURs RETIRED*
1974	72	0	n/a
1975	4	0	n/a
1976	195	0	n/a
1977	119	0	n/a
1978	667	0	n/a
1979	1,037	0	n/a
1980	166	0	n/a
1981	0	0	n/a
1982	100	0	n/a
1983	0	0	n/a
1984	0	0	n/a
1985	0	0	n/a
1986	0	0	n/a
1987	0	0	n/a
1988	807	0	n/a
1989	1,540	0	n/a
1990	2,503	0	n/a
1991	846	0	n/a
1992	64	0	n/a
1993	328	0	n/a
1994	2	0	n/a
1995	95	0	n/a
1996	42	0	n/a
1997	336	0	n/a
1998	485	0	n/a
1999	951	0	n/a

YEAR	VOF, OTHERS (acres)	COUNTY (acres)	DURs RETIRED*
2000	1,453	0	n/a
2001	764	0	n/a
2002	1,180	0	n/a
2003	133	145	3
2004	957	35	1
2005	943	312.6	5
2006	425	579	18
2007	285	1,222 1,205	45 44
2008	0	250	12
2009	230	484	13
2010	0	473	21
2011	210	591	18
2012	0	709	26
2013	1,120	612	15
2014	65	404	15
2015	17	33	3
2016	0	1,262	30
2017	0	308	14
2018	197	635	16
2019	211	209	7
2020	0	23	2
2021	61	244	13
TOTAL	18,610	8,531 8,514	277 276

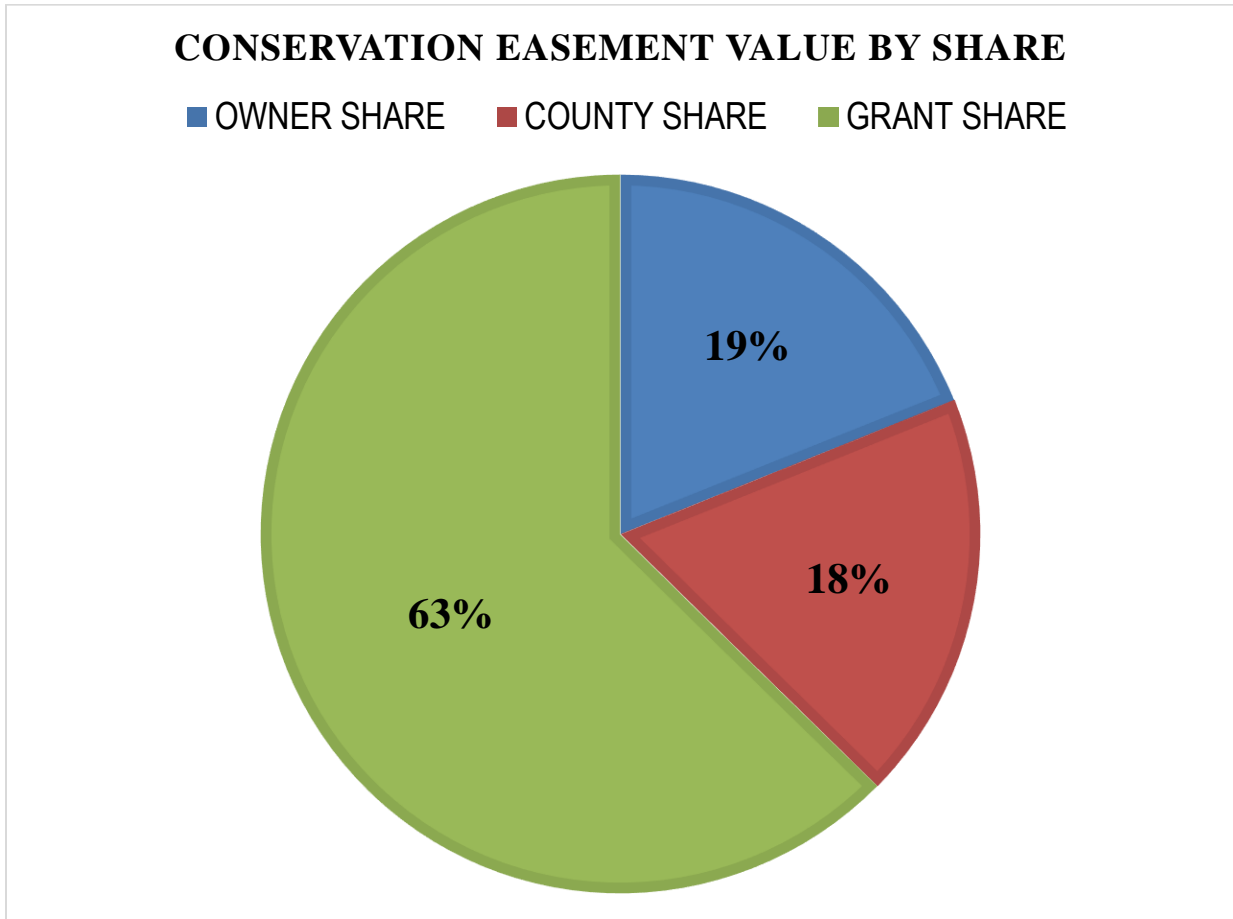
ALL ACRES 27,141 in conservation easement (approximately 24% of Clarke County)

Source: Clarke County Planning Department GIS

** Data on retired DURs is not available prior to 2003
 DUR – Dwelling Unit Right
 VOF – Virginia Outdoors Foundation*

TABLE 2B – Conservation Easement Purchase Value by Share, 2013-2021, with chart

TOTAL EASEMENT VALUE*	OWNER SHARE	COUNTY SHARE	GRANT SHARE
\$3,521,960	\$666,750	\$649,626	\$2,206,645



*The total easement value is the determined value of the DURs, either from appraisal or valuation by the Clarke County Conservation Easement Authority. The county share and grant share represent the amounts paid to the owner from the County and grant source. The owner share represents the remainder of the easement value not paid to the owner that may be tax deductible.

E. ENVIRONMENTAL LIMITATIONS AND CONSIDERATIONS

Clarke County has significant environmental and geological characteristics that present challenges for preservation of natural resources and for development. These characteristics are summarized below.

1. **Geology**

The most significant geological feature in the county is karst. Karst, consisting primarily of limestone, is characterized by large underground drainage systems, sinking streams, sinkholes, and caves due to the solubility of the limestone. The resultant hollow underground geology makes groundwater supplies very susceptible to pollution from surface and subsurface point and nonpoint sources. Groundwater pollutants are able to travel *quickly over* significant distances and can impact multiple aquifers due to the drainage networks that typically exist in karst. Surface pollutants are able to penetrate through to these same aquifers via sinking streams and sinkholes, making stormwater runoff a critical feature to manage. Approximately 90% of the County's land area west of the Shenandoah River contains karst.

The County experienced a major example of groundwater contamination firsthand in 1981. The Town of Berryville was forced to abandon its public well system due to contamination from nitrates, phenols, and herbicides -- none of which could be traced to a single source. The Town's water supply is now provided by a direct intake from the Shenandoah River and a water treatment facility. Instances of groundwater contamination have occurred in other parts of the county ranging from petrochemical contamination in the Pine Grove, White Post, and Shepherd's Mill Road areas to fecal coliform, nitrate, and pesticide contamination in various locations across the County. The County provides public water via the Prospect Hill spring to the Town of Boyce and to residences and businesses in Millwood, White Post, and Waterloo. Given the County's usage of the spring as its primary water source and the fact that all homes and businesses outside of these areas rely on private wells, groundwater protection is a major issue to be considered in land use planning and decision-making.

The County has implemented a number of different ordinances to help mitigate the potential for groundwater contamination. These ordinances include the following:

Septic Ordinance. This ordinance was adopted to provide local regulations for onsite sewage disposal systems that are more stringent than the State's minimum standards. These more stringent standards include greater setbacks from streams, springs, and sinkholes and the requirement of resistivity tests to ensure that geological voids do not exist under proposed drainfield sites. The County has also been active in regulating alternative onsite septic systems within the boundaries provided by the Code of Virginia.

Well Ordinance. This ordinance also provides more stringent standards for the placement of onsite wells for water supplies including greater setbacks than the State's minimum standards and more extensive well pump requirements.

Sinkhole Ordinance. The County's sinkhole ordinance was implemented to prohibit property owners from constructing on or placing objects or substances into sinkholes that are located on their properties. The ordinance provides for several methods to mitigate the potential for groundwater

pollution via sinkholes and enforcement tools to ensure compliance.

Spring Conservation Overlay District. The Spring Conservation Overlay District was adopted as part of the County's Zoning Ordinance to provide additional protection to the Prospect Hill Spring. This spring provides the public water supply for the Town of Boyce, the villages of Millwood and White Post, and the Waterloo commercial district. The spring was permitted by the State Health Department as a public water supply in 1977 and several studies were completed over the years concluding that the spring is very susceptible to contamination from point and nonpoint sources.

Overlay District regulations provide additional safeguards over and above the underlying zoning district provisions specifically targeted at preserving the spring's integrity. These include additional use restrictions and requirements, lot and structure requirements, and septic system requirements.

Erosion and Sediment Control Ordinance. The County adopted an Erosion and Sediment (E&S) Control Ordinance in 1990. The purpose of the Ordinance is to prevent the erosion of land and the deposit of sediment in waters ~~in order so as~~ to protect not only the County watersheds, but also the regional Chesapeake Bay watershed. This Ordinance is intended to reduce pollution and sedimentation of waterways so that fish and aquatic life, recreation, and other water related activities would not be adversely affected. Virginia Code Section 10.1-560 et. seq. provides for state standards and enables counties to fortify further the laws governing erosion control. The County amended the Ordinance in 1994 as part of the Mountain Land Plan. These amendments strengthened the Ordinance by requiring E&S plans for smaller areas of land disturbance and for non-agricultural pond construction.

Stormwater Ordinance. In 2010, Clarke County voluntarily adopted a stormwater management ordinance and design manual in advance of efforts by the State to strengthen the Virginia Stormwater Management Law (Code of Virginia §10.1-603.3). ~~This State law requires localities to take an active role in managing stormwater runoff from development projects. The ordinance proactively involves the County early in the site preparation process by requiring submission and review of a stormwater management concept plan. The concept plan is designed to demonstrate a system that meets stormwater quality and quantity requirements set forth by State law and the County's ordinance. The ordinance also maintains County oversight after completion of construction by requiring maintenance agreements for all stormwater best management practices (BMPs).~~ *However, in 2016 the State created new regulations (Code of Virginia §62.1-44.15:24) that restricted localities from adopting stormwater regulations that are more stringent than State requirements unless they agreed to become authorities for a local Virginia Stormwater Management Program (VSMP). Clarke County chose to opt-out of operating a local VSMP, and as a result, repealed the stormwater management ordinance adopted in 2010. Clarke County regulations currently require land development activities to comply with the State's stormwater management regulations that are administered by the State.*

~~In addition to regulating the quantity of stormwater that leaves a development site, the ordinance regulates the quality of the stormwater and degree of pollutants via water quality design criteria. All BMPs used to manage stormwater must also meet minimum standards for reducing phosphorus content. Phosphorous removal is critical for the County to meet water quality runoff standards that are imposed on each locality by the State via the Chesapeake Bay Preservation Act.~~

~~Clarke County is one of only a handful of small localities in Virginia that proactively adopted a stormwater ordinance that meets and exceeds the State's new criteria.~~

2. Soils

The Clarke County Soil Survey (published 1982) included analyses of the soils' capacity to support for various potential uses. The results of the analyses for two potential uses, conventional on-site sewage disposal systems (septic tank and drainfield) and agriculture, are discussed below. Included in the analysis were major soil and landscape features such as physical properties, slope, depth to rock, depth to water tables, stones and rock outcrops, soil productivity, and landscape relief.

On-site Sewage Disposal Systems

Almost 75 % of the land (83,297 acres) in Clarke County has severe limitations for on-site sewage disposal systems, according to the soil survey. Septic fields in this soil will result in excessively slow absorption of effluent, surfacing of effluent, and hillside seepage. However, due to the limited accuracy of the soil survey, there may be areas within those soils that are suitable for septic systems. Groundwater pollution can also result if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if the slope is excessive, or if the water table is near the surface.

In the remainder of the County, about 6 % of the land (6,682 acres) has moderate to severe limitations for on-site sewage disposal systems, 14 % (15,590 acres) has moderate limitations, and 5 % has not been rated.

TABLE 3 – Septic Systems Limitations

Category	Total Area (acres)	% of Total County Area
Severe	83,297	75%
Moderate to Severe	6,682	6%
Moderate	15,590	14%
Unrated	5,746	5%

These soil conditions present serious challenges to development in areas not served by public sewer and are an important reason why the County has chosen to focus development near the towns and villages where such infrastructure can be provided.

3. Agriculture

About 40% of the land in Clarke County is suitable for some type of cultivated farm crop. Best suited for agriculture are soil group 5, which forms a strip through the center of the County, and soil group 8, which includes the floodplain of the Shenandoah River. (Chapter III, Article 1, describes the Agricultural Land Plan, which contains a full discussion of agriculture in the County.)

In addition to the general soil classifications, the U.S. Department of Agriculture (USDA) characterizes soil types in terms of important farmland. This classification recognizes areas important to agricultural production, with responsibility given to governing bodies, in cooperation with the USDA, for classifying farmlands within their jurisdictions.

1. Prime farmland is land that has the best combination of physical characteristics for the production of food, fiber, forage, oilseed, and other agricultural crops, with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion. Prime farmland includes land that also possesses the above characteristics but is currently being used to produce livestock and timber. It does not include land already in or committed to urban development or water storage.
2. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of specific crops economically, when treated and managed according to acceptable farming methods.

Examples of such crops include citrus, tree nuts, olives, cranberries, fruit, including grapes, apples, and vegetables.

3. Farmland of statewide importance is land other than prime or unique farmland that is of statewide importance for the production of food, feed, fiber, forage, or oilseed crops.
4. Farmland of local importance is land that is neither prime nor unique but is of local importance for the production of food, feed, fiber, forage, or oilseed crops.
5. Other is land that is usually of little or no importance to agriculture and includes all map units not assigned to a higher class.

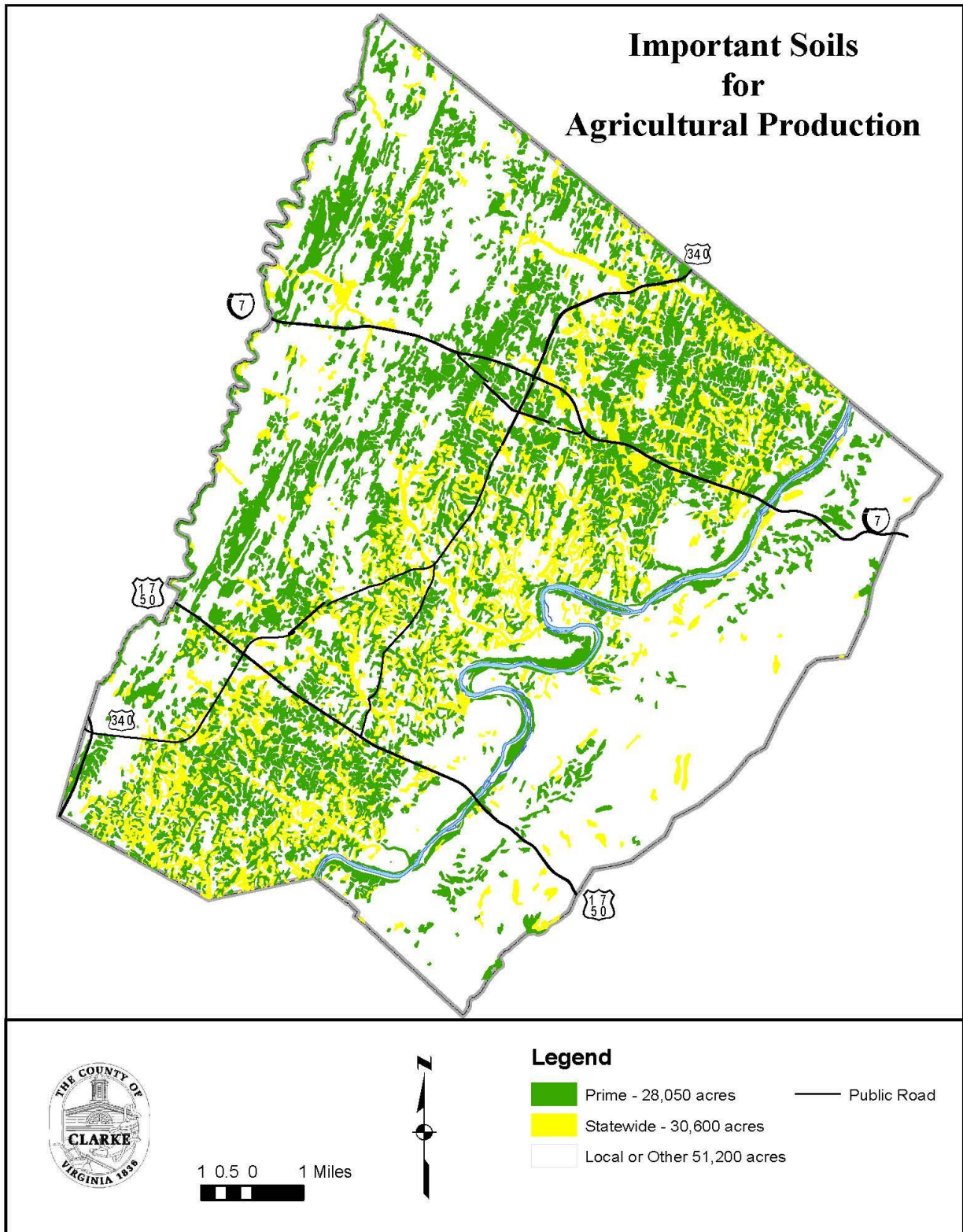
Clarke County further classified farmland types into categories described in Table 4 and shown on Map 4. These categories are used with the Land Evaluation and Site Assessment (LESA) system. The LESA system is a technique developed by the USDA’s Natural Resources Conservation Service (NRCS) to evaluate the productivity of agricultural land and its suitability or non-suitability for conversion to nonagricultural use. The NRCS, previously referred to as the Soil Conservation Service (SCS), assisted the County in developing the categories and implementing the system in 1982.

TABLE 4 – Important Farmland Values of Soils *in Clarke County*

Group #	Acreage	% of Total Land Area
1 (prime, nonrocky)	9,395	8.7%
2 (prime)	12,107	11.0%
3 (prime, rocky)	6,552	5.9%
4 (Statewide)	16,189	14.8%
5 (Statewide)	14,418	13.1%
6 (Local)	4,687	4.3%
7 (Local)	17,052	15.5%
8 (Local)	6,431	5.9%
9 (Local)	18,199	16.6%
10 (Other)	4,643	4.2%

* Soil Survey of Clarke County, 1982.

Map 7



F. POPULATION PROFILE

1. Population Growth and Density

Changes in population have extensive implications for planning because they affect the need for community facilities and services, land uses, and housing demand. Planning for population growth must be proactive to help guide growth as it occurs, rather than react to it after it is in place. Demographics and statistical information for this Comprehensive Plan ~~is~~ **are** provided from the ~~2010~~ U.S. Census, the University of Virginia’s Weldon-Cooper Center, and the Virginia Employment Commission (VEC) among other sources. As the result of delays in the release of 2020 US Census Data for demographics, current estimates from American Community Survey are also used.

According to the ~~2010~~ 2020 Census, Clarke County's population increased from ~~12,652~~ **14,034** in the 2000 Census to ~~14,034~~ **14,783** – an increase of ~~10.95.3%~~ **5.3%**. ~~This increase is greater than the 4.5% increase from 1990-2000 and can be attributed to the housing “boom” experienced from 2001-2005. Despite this increased growth rate, Clarke still grew at a slower rate than any surrounding jurisdictions (ranging from Warren County’s 19% rate to Loudoun County’s 84.1% rate), and below the Commonwealth of Virginia’s growth rate of 13%. The County also grew at a slower rate than the 14,205 projection made in 2005 by the Weldon-Cooper Center. This increase is more consistent with the 4.5% increase from 1990-2000, rather than the 10.9% increase from 2000-2010. The period from 2000-2010 can be attributed to the housing “boom” experienced primarily from 2001-2005. Clarke County has maintained a slower growth rate slower than surrounding jurisdictions, consistently lower than projections provided by the Weldon-Cooper Center.~~

Population density within Clarke County (persons per square mile) increased from 57 in 1980, to 70 in 1990, to 72 in 2000, and to ~~7880~~ **83** persons per square mile in 2010. ~~According to the 2020 Census, Clarke County has 83 persons per square mile.~~ This level of density remains considerably lower than in all surrounding counties, being ~~less than~~ half that of the next most dense jurisdiction, Warren County.

TABLE 5 – Population and Growth Rates, 1950-20~~10~~20

Jurisdiction*	1950	1960	1970	1980	1990	2000	2010	2020
Clarke	7,074	7,942 (12.2%)	8,102 (2.0%)	9,965 (23.0%)	12,101 (21.4%)	12,652 (4.5%)	14,034 (10.9%)	14,783 (5.3%)
Loudoun	21,147	24,549 (16.1%)	37,150 (51.3%)	57,427 (54.6%)	86,129 (50.0%)	169,599 (96.9%)	312,311 (84.1%)	420,959 (34.8%)
Frederick/City of Winchester	31,378	37,051 (18.1%)	48,322 (30.4%)	54,367 (12.5%)	67,686 (24.5%)	82,794 (22.3%)	104,508 (26.2%)	119,539 (14.4%)
Warren	14,801	14,655 (-1.0%)	15,301 (4.4%)	21,200 (38.6%)	26,142 (23.3%)	31,584 (20.8%)	37,575 (19.0%)	40,727 (8.4%)
Fauquier	21,248	24,066 (13.3%)	26,375 (10.0%)	35,889 (36.1%)	48,860 (36.1%)	55,139 (12.9%)	65,203 (18.3%)	72,972 (11.9%)
Fairfax	98,557	275,002 (179.0%)	454,275 (65.2%)	598,901 (31.8%)	818,584 (36.7%)	969,749 (18.4%)	1,081,726 (11.5%)	1,150,309 (6.3%)
Berkeley Co., WV	30,359	33,791 (11.3%)	36,356 (7.6%)	46,775 (28.7%)	59,253 (26.7%)	75,905 (28.1%)	104,169 (37.2%)	122,076 (17.2%)
Jefferson Co., WV	17,184	18,665 (8.6%)	21,280 (14.0%)	30,302 (42.4%)	35,926 (18.6%)	42,190 (17.4%)	53,498 (26.8%)	57,701 (7.9%)

Source: US Census 20~~10~~20

*County government unless otherwise specified

~~Most of the growth continues to occur in the northern portions of the County, with 59% of the population in Census Tract 101 (the northern half of the County west of the Shenandoah River, including the Town of Berryville). Census Tract 102 (the southern half of the County west of the River) has 22% of the population. Census Tract 103 (east of the River) has 19% of the population. Clarke County includes four census tracts. Census Tract 101.01 represents the northern portion of the County. Census Tract 101.02 includes the Town of Berryville. Census Tract 102 includes the southwestern portion of Clarke County. Census Tract 103 includes the area east of the Shenandoah River. Of these census tracts, the majority of growth in the past decade has been in Census Tract 103, with a 9.6% population change. Second in growth change is Census Tract 101.01, with an increase of 8.6%. Census Tract 101.02 and Census Tract 102 only had a change of approximately 2%.~~

The U.S. Census does not make projections. The University of Virginia's Weldon-Cooper Center, through a contractual arrangement with the Virginia Employment Commission (VEC), establishes the official population projections for the state. The VEC projected population for Clarke in ~~2020~~**2045** is ~~15,025,16,123~~, a ~~7.1~~**9.1** percent increase from ~~the 2010~~**2020 U.S. Census**. It should be noted that population projections are based on local and regional growth trends. A locality's growth control measures and approach to land use is not included as a factor in making the projections.

Clarke County's neighboring counties continued to experience significant growth. As a point of reference, the Code of Virginia establishes a decadal growth rate of 10% or more as "high growth." Loudoun's growth of almost 100% in the 1990s was nearly repeated with an 84.1% rate in the 2000-2010 period, ~~but is projected to slow to 27.2% through.~~ **From 2010 to 2020, Loudoun County had a slower, but still significant, growth of 34.8%. Projections indicate that Loudoun County's population will increased by 72.5% between 2020 and 2045.** Fauquier's growth rate increased from 13% in the 1990s to 18% in the 2000s, ~~and 11.9% between 2010 and 2020 and is expected to increase by 13.7% in the current decade.~~ **Fauquier's population is expected to increase 20.5% by 2045.** The combined population of Frederick and Winchester grew by 22% in the 1990s, ~~and increased by 26.2% in the past decade between 2000 and 2010, and by 14.4% in the past decade.~~ The 21% Warren County growth rate in the 1990s slowed slightly to 19% in 2010. **Between 2010 and 2020 Warren County had a growth rate of 8.4%.** The 17% rate of growth in Jefferson County in the 1990s increased to 26.8% ~~by 2000~~ **between 2000 and 2010.** Similarly, the ~~28%~~ Berkeley County growth rate also increased to 37.2% **in 2010, followed by a decline to 17.2% in 2020.** Jefferson and Berkeley Counties are projected to continue growing at **similar** rates ~~of 17.2% and 23.4% respectively over the current-next~~ decade.

TABLE 6 – Population Projections, 2000-2030

Jurisdiction	2020*	2025**	Growth % 2020-2025	2035**	Growth % 2025-2035	2045**	Growth % 2035-2045
Clarke	14,783	14,894	.8%	15,560	4.5%	16,123	3.6%
Loudoun	420,959	492,696	17.0%	611,954	24.2%	726,245	18.7%
Frederick/City of Winchester	119,539	127,265	6.5%	142,917	12.3%	157,526	10.2%
Warren	40,727	42,108	3.4%	45,679	8.5%	48,930	7.1%
Fauquier	72,972	75,046	2.8%	81,775	9.0%	87,928	7.5%
Fairfax	1,150,309	1,203,264	4.6%	1,276,124	6.1%	1,340,323	5.0%
Berkeley Co., WV	122,076	128,196***	5.0%	144,886***	13.0%	No data	No data
Jefferson Co., WV	57,701	62,463***	8.3%	68,245***	9.3%	No data	No data

Sources:

* US Census (2020)

** University of Virginia’s Weldon-Cooper Center (projections)

*** West Virginia University’s Bureau of Business and Economic Research unpublished data, published by the WV Solid Waste Management Board

The 60 miles to Washington, D.C. and the buffer afforded by the Blue Ridge along the County's eastern border have in the past shielded Clarke County somewhat from urban development pressures. However, Fairfax County is now heavily urbanized with ~~1,081,726~~ **1,150,309** residents (~~2,766~~ **2,833** *people* per sq. mi.), and Loudoun County is among the fastest growing jurisdictions in the nation. In addition, major employment centers are continuing to be developed in Loudoun and Prince William Counties. Because of this continued growth in surrounding counties, it can be expected that Clarke County's desirability for residential and economic growth will continue to increase. It thus becomes increasingly important to provide Clarke County's residents with land-use planning that balances diverse community interests.

2. Mobility and In-Migration

The 2010 Census revealed that Clarke County had an increase of people moving into the county versus moving out (Migration) from 9.5% to 11.4%. The County also had a higher rate of deaths versus births (Natural Increase) from 0% to -0.5%. *During that period, the increase in migration is likely a result of the increase in new home construction from 2001-2005 as well as homebuyers looking for more affordable housing options away from Northern Virginia’s urban core and to seek the high quality rural lifestyle. Another factor for the increase in migration is the high demand for housing in Clarke County, driven by homeowners seeking a quality rural lifestyle.* The increase in the rate of deaths versus births is indicative of an aging population as younger residents and families are not coming to or remaining in the County as they had in previous years. The net migration rate for Virginia and the natural increase rate both increased from 2000-2010. Migration and natural rates of increase were greater for surrounding jurisdictions. *The 2020 Census has not released migration and natural increase data at this time. Estimates of similar data, such as Cumulative Estimates of the Components of Population Change, are consistent with the migration trend seen in the 2010 Census.*

TABLE 7 – Migration and Rates of Natural Increase

JURISDICTION	MIGRATION		NATURAL INCREASE	
	2000	2010	2000	2010
Clarke	9.5%	11.4%	0.0%	-0.5%
Loudoun	37.9%	61.2%	10.9%	22.9%
Frederick	10.6%	24.9%	3.5%	7.3%
City of Winchester	9.3%	4.7%	3.4%	6.4%
Warren	6.0%	14.0%	2.5%	5.0%
Fauquier	11.4%	12.6%	2.7%	5.7%
Virginia (statewide)	3.7%	6.5%	3.2%	6.5%

Sources: US Census 2010

3. Commuting Patterns

According to the U.S. Census Bureau’s ~~2007-2011~~ **2019** American Community Survey ~~5-Year~~ Estimates, roughly 2/3 of the County’s workforce were employed outside of the County. ~~66.4%~~ **69.7%** of residents worked outside of the County as compared to ~~26.9%~~ **23.6%** that worked in the County. ~~This is a slight increase from the 2000 Census past two decades which depicted 64% of workers employed outside of the County.~~ As indicated in the table below, the average travel time to work for commuters is ~~34.5~~ **38.1** minutes. The American Community Survey results indicated that ~~22.2%~~ **23.1%** of workers reported a daily commute to work of 60 minutes or greater. The top five destinations for commuters include Loudoun County, Fairfax County, City of Winchester, Frederick County, and Washington, DC.

TABLE 8A – Commuting Patterns

	2000	2010	2019*
Mean Travel Times (min)	32.4	34.5	38.1
Workers 16 yrs/older	n/a	6,952	7,082
Drove alone (%)	77.3%	82.6%	80.1%
Carpool (%)	10.8%	9.7%	10.3%
Walked (%)	n/a	1.6%	1.5%
Other/Public Trans (%)	n/a	1.4%	1.3%
Worked from home (%)	n/a	4.7%	6.7%

Source: 2010 and 2019 American Community Survey

TABLE 8B – Top 10 Places Residents Are Commuting To and From

Top 10 places residents are commuting to:		Top 10 places non-residents are commuting from:	
AREA	WORKERS	AREA	WORKERS
Loudoun County	1,5531,616	Frederick County	932876
Fairfax County	1,0581,077	Berkeley County, WV	247262
City of Winchester	572673	City of Winchester	285253
Frederick County	459509	Loudoun County	182199
Washington, DC	201215	Jefferson County, WV	230195
Prince William County		Warren County	156129
Montgomery County, MD	191193	Shenandoah County	8891
Washington, DC		Hampshire County, WV	6769
Prince William County	183175	Fairfax County	5366
Montgomery County, MD		Fauquier County Prince	4142
Arlington County	139147	William County	
Warren County	127141		
Jefferson County, WV	120134		
Fauquier County, VA			

Source: Virginia Employment Commission, Clarke County Community Profile, updated 1/6/2022

4. Employment and Wages

The table below lists the top 10 employers ~~for the first quarter of 2012 in Clarke County, as of January 6, 2022~~. Statistics are not publicly available for ~~the~~ Mt. Weather Emergency Operations Center, ~~a Federal Emergency Management Agency (FEMA) facility~~.

TABLE 9 – Top 10 Employers, ~~April 2013~~ January 2022

EMPLOYER	INDUSTRY
Berryville Graphics	Printing
Clarke County School Board	Public School
Grafton School, Inc. <i>Clarke County</i>	Health Care Local Government
Clarke County <i>Grafton School, Inc.</i>	Local Government <i>Health Care</i>
GGNSC Berryville LLC <i>Martin's Food Market</i>	Health Care <i>Retail</i>
Project Hope <i>American Woodmark Corporation</i>	Nonprofit <i>Wholesale</i>
GSM Consulting <i>Powhatan School</i>	IT Consulting <i>Private School</i>
Bank of Clarke County	Banking
Powhatan School <i>Cochrans Lumber & Millwork Inc</i>	Private School <i>Industrial</i>
Va. Division of Community Corrections <i>The Red Gate Group Limited</i>	State Government <i>Federal Contracting</i>

Source: Virginia Employment Commission, Clarke County Community Profile, updated 1/6/2022

As noted in the tables below, the County's unemployment rate in ~~2010~~ *November of 2021* was ~~4.4%~~ *2.1%* compared to the statewide rate of ~~5.5%~~ *3.4%*. *This represents a recovery from the spike in unemployment that occurred in 2020 due to the Covid-19 pandemic. Clarke County is similar in comparison to other localities in the region, all of which have lower than average unemployment rates in comparison to the state average, and significantly lower rates than the national average.*

TABLE 10A – Unemployment Rate

	2000	2010	2011	2012	2019	2020	2021 (11/2021)
Employed Residents	6,712 <i>6,801</i>	7,790 <i>7,178</i>	n/a	n/a	<i>7,531</i>	<i>7,157</i>	No data
County Unemployment	1.6%	4.4% <i>6.9%</i>	5.0%	4.6%	<i>2.4%</i>	<i>4.6%</i>	<i>2.1%</i>
State Unemployment	2.3%	5.5% <i>7.3%</i>	6.4%	5.5%	<i>2.7%</i>	<i>6.3%</i>	<i>3.4%</i>

Source: U.S. Bureau of Labor Statistics, annual average unless otherwise noted.

TABLE 10B – Unemployment Rate by Year, ~~2002-2013 (February)~~ 2010-2021 (November)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	FEB 2013
Clarke	3.0%	3.1%	2.8%	2.6%	2.4%	2.7%	3.5%	6.5%	5.8%	5.0%	4.9%	4.7%
Loudoun	3.7%	3.2%	2.6%	2.4%	2.1%	2.1%	2.8%	4.8%	4.8%	4.8%	4.2%	4.1%
Frederick	3.5%	3.6%	3.0%	2.8%	2.6%	3.0%	4.2%	7.7%	7.1%	5.9%	5.4%	4.9%
City of Winchester	3.8%	3.8%	3.3%	3.0%	2.8%	3.1%	4.3%	7.9%	7.5%	6.6%	6.0%	6.2%
Warren	4.0%	4.0%	3.3%	3.0%	2.8%	3.1%	4.5%	7.7%	7.2%	6.4%	5.9%	6.0%
Fauquier	3.1%	3.1%	2.7%	2.6%	2.4%	2.5%	3.4%	5.6%	5.8%	4.9%	4.9%	4.8%
Fairfax	3.4%	3.1%	2.7%	2.5%	2.2%	2.2%	2.9%	4.9%	4.9%	4.9%	4.3%	4.1%
Berkeley Co., WV	4.7%	4.6%	4.2%	3.8%	3.9%	3.8%	4.6%	8.4%	8.7%	7.9%	7.3%	7.0%
Jefferson Co., WV	3.9%	3.7%	3.3%	3.1%	3.1%	3.0%	3.7%	6.5%	6.4%	6.0%	5.2%	5.1%

Sources: Virginia Employment Commission
WVU Bureau of Business and Economic Research

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 (11/2021)
Clarke	6.8%	5.7%	5.1%	4.6%	4.3%	3.9%	3.5%	3.4%	2.9%	2.4%	4.5%	2.1%
Loudoun	5.3%	4.7%	4.4%	4.3%	4.2%	3.5%	3.1%	3.0%	2.5%	2.2%	5.4%	2.1%
Frederick	7.6%	6.5%	5.7%	5.2%	4.6%	3.9%	3.4%	3.2%	2.6%	2.3%	4.6%	2.0%
City of Winchester	8.5%	7.4%	6.5%	5.7%	5.0%	4.3%	4.0%	3.6%	2.9%	2.7%	5.8%	2.3%
Warren	8.3%	7.4%	6.6%	6.0%	5.5%	4.7%	4.0%	3.7%	3.0%	2.7%	5.9%	2.4%
Fauquier	6.3%	5.5%	5.0%	4.8%	4.5%	3.9%	3.4%	3.3%	2.6%	2.3%	4.7%	2.0%
Fairfax	5.5%	4.8%	4.6%	4.4%	4.2%	3.8%	3.1%	3.2%	2.6%	2.4%	5.5%	2.3%
Berkeley Co., WV	8.6%	7.5%	6.4%	5.6%	5.4%	4.8%	4.0%	3.7%	4.0%	3.6%	6.2%	1.8%
Jefferson Co., WV	6.7%	6.1%	5.2%	4.7%	4.6%	4.0%	3.4%	3.1%	3.3%	3.1%	6.0%	1.5%
Virginia	7.3%	6.5%	6.0%	5.6%	5.1%	4.4%	4.0%	3.7%	3.0%	2.7%	6.3%	3.4%
West Virginia	8.6%	7.8%	7.3%	6.7%	6.5%	6.6%	6.1%	5.2%	5.2%	4.9%	8.4%	4.0%
United States	9.6%	8.9%	8.1%	7.4%	6.2%	5.3%	4.9%	4.4%	3.9%	3.7%	8.1%	4.2%

Sources: U.S. Bureau of Labor Statistics, annual average unless otherwise noted.

TABLE 11 – Employment and Wages

Industry	2000 2012		3Q-2012 2020-2021**		
	# of Jobs*	Avg Weekly Wage*	# of Jobs*	# of New Hires**	Avg Weekly Wage*
Agriculture, Forestry, Fishing, Hunting	132151	\$401507	151176	1226	\$507674
Construction	319310	\$562715	310299	5032	\$7151,005
Manufacturing	1191no data	\$611no data	n/a628	23115	n/a918
Wholesale Trade	37156	\$1,5621,367	156171	1612	\$1,3671,495
Retail Trade	309246	\$294403	246322	4679	\$403535
Transportation and Warehousing	5616	\$496668	1623	63	\$6681,158
Information	2617	\$8321,104	1726	0	\$1,1041,120
Finance and Insurance	21(2005)92	\$1306(2005)847	9279	60	\$8471,265
Real Estate, Rental, and Leasing	3548	\$378756	4827	7	\$756641
Professional, Scientific, and Technical Services	89228	\$8981,892	228189	3313	\$1,8921,849
Administrative, Support, and Waste Management	53107	\$250483	107125	1421	\$483610
Educational Services	1157262	\$482810	262216	3444	\$810961
Health Care and Social Assistance	221391	\$351460	391218	7455	\$460723
Arts, Entertainment, and Recreation	8457	\$332366	5719	286	\$366567
Accommodation and Food Services	143228	\$210267	228229	73	\$267456
Other Services (except Public Administration)	168136	\$425741	136147	1416	\$741589
Public Administration	267722	\$483840	722670	2724	\$8401,075

*Source: * Virginia Employment Commission, Economic Information & Analytics, Quarterly Census of Employment and Wages (QCEW), 3rd Quarter 2012 and 2nd Quarter 2021. **U.S. Census Bureau, Local Employment Dynamics (LED) Program, 3rd Quarter 2020, all ownerships.*

5. Income

a. Median Household Income. Median household income is the middle income in a distribution of all family incomes. ~~The U.S. Census Bureau calculates this figure in conjunction with the decennial census.~~ *The U.S. Census, in conjunction with American Community Survey, conducts estimates of income on a periodic basis.* In ~~2010~~**2019**, the median household income was ~~\$77,04880,026~~ – a significant increase from the 2000 Census figure of \$59,750. This figure exceeds the statewide median of ~~\$63,30274,222~~ and also exceeds figures in Frederick County (~~\$66,44078,002~~), City of Winchester (~~\$46,06558,818~~), and Warren County (~~\$61,37969,116~~), ~~and Jefferson County, WV (\$65,285)~~. The County's figure was less than the median income in *Jefferson County, WV (\$80,430)*, Fairfax County (~~\$108,439124,831~~), Loudoun County (~~\$120,096142,299~~), and Fauquier County (~~\$87,958100,783~~).

b. Per Capita Income. Per capita income is the average income per person in a defined area. In Clarke County, the per capita income was ~~\$37,55141,332~~ per the ~~U.S. Census 2007-2011~~ **2019** estimates – up from ~~\$24,84437,551~~ reported in the ~~2000~~**2010** Census. This exceeds the state average of ~~\$33,04039,278~~. Similarly, the County's income figure exceeded Frederick County (~~\$29,40935,123~~), City of Winchester (~~\$26,34330,859~~), Warren County (~~\$30,06932,086~~), and Jefferson County, WV (~~\$29,60236,305~~). The County's figure was less than Fairfax County (~~\$63,30256,231~~), Loudoun County (~~\$46,49355,744~~), and Fauquier County (~~\$40,56945,408~~).

c. Poverty Status. Poverty is defined by the U.S. Department of Housing and Urban Development as an income level of 30% or less of median income varied by household size. Per the ~~U.S. Census 2007-2011~~ **2019** estimates, ~~6.7%~~ **6.2%** of Clarke County's residents were determined to be below the poverty level ~~of \$23,114~~. This figure is well below the statewide average of ~~10.7%~~ **9.2%** and also below Frederick County (~~7.9%~~ **7.4%**), City of Winchester (~~18.7%~~ **16.3%**), Warren County (~~8.8%~~ **10.1%**), and Jefferson County, WV (~~9.1%~~ **7.8%**). The figure was above the figures for Fairfax (~~5.5%~~ **5.3%**), Loudoun (~~3.4%~~ **3.2%**) and Fauquier Counties (~~5.3%~~ **6.0%**).

6. Ethnic Composition

The ethnic composition of a community is a key element of its character. Change in the relative size of ethnic groups can be a challenge and an opportunity for a community. Currently, the County is relatively homogenous, but this has not always been the case. The first census of Clarke County, in 1840, showed 55% of population to be African-American (52% slaves and 3% free colored), but this gradually changed over time. In 2000, African-American residents made up 6.7% of the County’s population. This number decreased to 5.5% in the 2010 Census, **and is currently at 4.7% based on 2021 census estimates**. Over the same time period, the County’s Hispanic population increased from 1.5% to ~~3.6%~~**6.4%** reflecting national trends.

TABLE 12 – Ethnic Composition of Population

ETHNICITY	2000	2010	2021
Population**	12,652	14,258(2011 est) 14,034	14,783
White persons (%)*	91.1%	91.0%	90.6%
Black persons (%)*	6.7%	5.5%	4.7%
Hispanic/Latino persons (%)*	1.5%	3.6%	6.4%
American Indian/Alaska Native (%)*	n/a	0.3%	.7%
Asian persons (%)*	n/a	1.1%	1.4%
Hawaiian/Pacific Islander persons (%)*	n/a	0.1%	.1%
Two or more races (%)*	n/a	2.0%	2.5%
White persons not Hispanic (%)*	n/a	88.0%	85.3%

Source: *US Census 2000, 2010, and Population Estimates, July 2021. ** US Census 2020.

7. Age Distribution

Population age distribution is very important from a planning perspective for several reasons. People under age 18 and over age 65 years are generally more dependent on family or public resources than those of prime working ages. Therefore, a large population in these age brackets can dramatically influence per capita income and buying power.

According to the Census Bureau's ~~2011~~ **2019** American *Community* Survey ~~4-5~~ Year Estimates, nationally ~~26.6%~~**25.0%** of the population is 19 years or younger, ~~60%~~**58.6%** is between the ages of 20 and 64, and ~~13.2%~~**16.5%** is 65 and older. For Virginia, ~~25.9%~~**24.6%** of the population is 19 years or younger, ~~61.7%~~**59.4%** is between the ages of 20 and 64, and ~~12.5%~~**15.9%** is 65 and older. *In comparison, Clarke County's population is a little older on average with 22.6% below 20 years of age, 56.7% between 20 and 64, and 20.7% is 65 and older.*

TABLE 13 – Age Distribution of Population in Clarke County

Age Range	1970	1980	1990	2000	2010*	2030*/** 2019*
17 or younger	32.4%	27.0%	22.8%	23.4%	25.0% 23.2%	20.8% 20.7%
Under 5 years	8.0%	6.0%	6.4%	5.2%	5.2%	5.3% 4.4%
5-17 years	24.4%	21.0%	16.4%	18.2%	19.8% 18.0%	15.5% 16.2%
18-64 years	56.0%	59.5%	63.2%	62.0%	58.7% 61.5%	53.8% 58.6%
65 years or older	11.6%	13.5%	14.0%	14.6%	16.3% 15.3%	25.4% 20.7%

Sources: American Community Survey, 2010 and 2019 5-Year Estimates

8. Educational Attainment

The US Census Bureau's American Community Survey 5-year Estimates (~~2007-2011~~**2019**) indicate that ~~89.6%~~**89.1%** of persons over 25 years of age in Clarke County were high school graduates. This figure is *higher slightly lower* than the statewide average of ~~86.6%~~**90%**. ~~31.6%~~**32.2%** of persons over 25 years of age have completed a four year college degree which is slightly below the statewide average of ~~34.4%~~**39.6%**. Increases in both rates are shown in the table below.

TABLE 14 – Educational Attainment of Persons over 25 Years of Age in Clarke County

Year	High School Diploma or Greater	4 year college degree or greater
1980	57.3%	15.7%
1990	75.0%	18.6%
2000	82.1%	23.5%
2011⁺ 2010*	89.6% 87.5%	31.6% 29.2%
2019*	89.1%	32.2%

Sources: US Census (1980, 1990, and 2000)

**2010 & 2019 American Community Survey 5-year Estimates*

G. HOUSING PATTERNS

1. Housing Growth

~~Over the past three decades, the County has experienced a relatively steady rate of new housing growth due primarily to the implementation of sliding scale zoning in 1980. The County's approach to land use decision making directs growth to the incorporated towns and strongly limits residential development in the County's unincorporated areas. Allowing higher density residential development to occur only in the towns enables development to be more closely managed through provision of public water and public sewer. As noted in the table below, the rate of increase of new dwellings has ranged from 14.4%–18.9% over the past three decades.~~

Since sliding scale zoning was implemented in 1980, the County has experienced a positive growth that fluctuates depending on supply and demand for new housing. From 1990 until 2010 the decadal growth rate was relatively stable, averaging approximately 16%. In 2020, the decadal growth rate in the County dropped to 3.4%. The lower demand for housing, resulting from the housing recession that began in 2008, is the primary factor for this change.

TABLE 15A – Housing Growth

	1980	1990	2000	2010	2020
Population	9,965	12,101	12,652	14,034	14,783
<i>Percentage Increase</i>	<i>n/a</i>	<i>21.4%</i>	<i>4.5%</i>	<i>10.9%</i>	<i>5.3%</i>
# of Dwelling Units	3,961	4,531	5,388	6,185	6,396*
<i>Percentage Increase</i>	<i>n/a</i>	<i>14.4%</i>	<i>18.9%</i>	<i>14.8%</i>	<i>3.4%*</i>
Persons Per Dwelling Unit Household	2.52	2.67	2.35	2.27	2.54*

Sources: US Census (2020)

** 2019 American Community Survey 5-year Estimates*

2. Distribution of Housing

Distribution of the housing stock influences the County's ability to provide public services, affects the amount of land available for agriculture, and affects the rural and scenic character of the County. For these reasons, the County has designated Berryville and Boyce as the most appropriate areas for residential growth to occur. However, from 1980 to 1992, fewer than 4% of the permits issued for new dwelling units were within the designated growth area. In the 1980s, 98% of new units were built outside of Berryville, compared with 85% of new units in the 1990s ~~and 54% of new units were built outside of Berryville and Boyce from 2000–2011.~~ *From 2000 to 2009, 53% of new housing units were built outside of the Towns. Despite the slowdown in the residential housing market, the distribution of houses remained relatively consistent between 2010 and 2020 with 56% of new housing in the County and 44% in the Towns.*

The table below lists the distribution of residential lots and housing units approved by decade in the County and in the Towns of Berryville and Boyce.

TABLE 15CB – Residential Lots and Housing Units, 1970-2011 2020

	1970-1979	1980-1989	1990-1999	2000-2011	2000-2009	2010-2020
New residential lots-Berryville	n/a	n/a	407	337	358	82
New housing units-Berryville	n/a	14	224	375	403	157
New residential lots-Boyce	n/a	n/a	n/a	131	132	22
New housing units-Boyce	n/a	n/a	n/a	93	86	47
New residential lots-County	456	350	305	295	323	69
<i>East of Shenandoah River</i>	n/a	n/a	65	80	82	14
<i>West of Shenandoah River</i>	n/a	n/a	240	215	246	55
New housing units-County	n/a	665	556	516	561	263
Total # of new residential lots	n/a	n/a	712	763	813	173
Total # of new housing units	777	679	780	984	1,050	467

*Town of Boyce included in County numbers prior to 2000

With the adoption of the Berryville Area Plan and the approval of several major subdivisions within that area, along with three new subdivisions developed within the Town of Boyce, the County is successfully directing future growth to the designated areas.

The table below lists the major subdivisions developed in Boyce and Berryville ~~since 1995~~ *between 1995 and 2020. In addition, Fellowship Square, a 50-lot subdivision was recently approved by the Town of Berryville.*

TABLE 15BC – Major Subdivisions Added in the Towns of Boyce and Berryville, 1995-2013 2020

	Total Acreage	Total Number of Lots
Town of Berryville		
The Hermitage	107	290 284
Battlefield Estates	208	200
Berryville Glen	72	71
Darbybrook	38	85
Southgate	11	26
Shenandoah Crossing	19	75 82
Town of Boyce		
Boyce Crossing	21	43
Roseville Downs	10	28
Meadow View	13	41

3. Housing Condition

The predominant dwelling unit type in Clarke County is single-family detached, which represents ~~87%~~ **91.8%** of all housing units (~~essentially unchanged from the 86% in 1990~~). Of the ~~6,220~~ **6,345** housing units identified by the ~~2007-2011~~ **2019** American Community Survey *Estimates*, there was a total vacancy rate of ~~11.0%~~ **11.6%**. The census considers two factors when measuring the condition of housing: lack of complete plumbing and overcrowding (more than one occupant per room). The number of dwelling units lacking complete plumbing in Clarke County declined by 56% from 1980 to 1990 (334 to 147), and by 76% from 1990 to 2000 (147 to 35 or 0.7% of the total houses). From 2000-2010, that number dropped from 35 to 24 homes. *The 2019 American Community Survey Estimates indicates that 100% of Clarke County's occupied housing units include complete plumbing facilities.* Housing units considered overcrowded (one or more persons per room) fluctuated due to economic conditions ~~since 1980 (101 units in 1980, 115 in 1990, 29 in 2000) to 67 units in 2010. In 1980 there were 101 overcrowded units. This increased to 115 in 1990, declined to 29 in 2000, increased to 67 in 2010, and declined to 36 in 2020.~~

4. Housing Affordability

Housing affordability is measured by the percentage of monthly income spent on rent or mortgage. Housing is considered affordable if the household costs are not more than 30% of monthly income. The ~~2010 Census~~ **2019 American Community Survey Estimates** states that ~~31%~~ **28.5%** of county households in ~~owner~~ occupied ~~dwellings housing units~~ spend 30% or more of their monthly income on housing costs. The median monthly mortgage amount was ~~\$1,864~~ **\$1,776**. ~~The 2010 Census also states that 14.7% of households in rental units spend more than 30% of their monthly income on rent.~~ The median monthly ~~gross~~ rent was ~~\$954~~ **\$1,151**.

For ~~owner-occupied~~ housing, another measure of affordability is a purchase price of not more than 3 times a household's annual income. According to the ~~2010 Census~~ **2019 American Community Survey Estimates**, the median family income **in Clarke County** was ~~\$77,048~~ **\$80,026**, and the median value of an owner-occupied housing unit was ~~\$356,700~~ **\$347,200** (~~over 4.6~~ **4.3** times the median family income). ~~The average assessed value of a single family home plus a one-acre house site was \$286,625 per the 2010 County assessment.~~

TABLE 16 --- Other Housing Statistics

Total Housing Units	6,220 6,345
Occupied Housing Units	5,612 (88.4%)
Vacant Housing Units	656 733 (11.6%)
Owner-Occupied Units	4,269 75%
Renter-Occupied Units	1,295 25%
Homeowner Vacancy Rate*	1.7% 1%
Rental Vacancy Rate	9.3% 5.5%
Year Structure Built (% of total)	
2005 2005	4.3% 14.3%
2000 or later 2000 or later	8.9% 14.3%
2000-2004 2000-2004	8.9% 14.3%
1990-1999 1990-1999	11.1% 11.6
1980-1989 1980-1989	13.3% 13.6
1970-1979 1970-1979	17.1% 27.0%
1960-1979 1960-1979	17.1% 27.0%
1960-1969 1960-1969	9.2% 9.2%
1950-1959 1950-1959	8.7% 15.8%
1940-1959 1940-1959	8.7% 15.8%
1940-1949 1940-1949	7.4% 7.4%
1939 or earlier 1939 or earlier	19.8% 17.7%
Median Home Value (owner occupied)	\$356,700 \$347,200
Median Monthly Owner Housing Costs	\$1,974 \$1,338
Median Gross Rent	\$1,038 \$1,151

Source: 2019 American Community Survey 5-Year Estimates

** Homeowner Vacancy rate is the proportion of homeowner inventory that is vacant "for sale."*

H. LAND USE

1. Land Use Types

Land use in Clarke County is predominantly agricultural, forested, and open space. Commercial intersections, villages, towns, and rural subdivisions are lightly dispersed throughout the County. The Town of Berryville, the predominant area of nonrural land use, includes industrial land, a central business district, and relatively dense residential development. The Town of Boyce also contains development on a nonrural scale with three residential subdivisions built in the past ten years surrounding a modest sized town core. Forest covers much of the rugged land east of the Shenandoah River. Suburban residential parcels located east of the Shenandoah River (lots under six acres) consume a significant portion of this land, 10.4 % as opposed to 5.3 % on land west of the river. This is due primarily to the presence of subdivisions that were platted prior to the 1980 implementation of sliding-scale zoning such as Shenandoah Retreat and Carefree Acres. The land west of the Shenandoah River is the agricultural heartland of Clarke County. Almost 70% of this land is used for agriculture-related operations, and almost 85% is in parcels of 20 acres or more.

~~Throughout this Plan, there are four distinct references to agricultural land:~~

- ~~1. Clarke County Zoning Ordinance. Agricultural—Open Space—Conservation (AOC) Zoning District. This district provides zoning regulations to control land use. It was established by the County Board of Supervisors in 1980 and was applied to most of the Valley portion of the County. *The AOC and FOC Zoning Districts of the Clarke County Zoning Ordinance both allow agricultural land uses. The AOC District is located in most of the Valley portion of the County, located west of the Shenandoah River. It is primarily intended for agricultural uses. AOC District regulations distinguish a parcel as agricultural when it is 20 or more acres in land area. Further distinctions exist for parcels that are 100 or more acres in size. The FOC District is located on most of the Blue Ridge portion of the County, located east of the Shenandoah River. It is primarily intended for forests.*~~
2. Clarke County Agricultural and Forestal Districts. Agricultural and Forestal Districts are a designation established by the Virginia General Assembly (Code of Virginia, §15.2-4300 through 4314 as amended) to protect and enhance agricultural land as an economic and environmental resource. Landowners voluntarily apply for inclusion in a district, but their property must meet specific criteria as agricultural land. By being in a district, the property is automatically eligible for taxation based solely on its agricultural value. The Clarke County Agricultural and Forestal District program was first established by the Board of Supervisors in 1986 and is subject to renewal every seven years.
3. Agricultural Land eClassification (parcels between 20 and 99 acres). The Clarke County Commissioner of Revenue classifies land for the purpose of taxation based on actual use, following criteria established by the Virginia Department of Taxation. ~~Two of these classifications are applied to agricultural land and are differentiated based on acreage.~~
4. Agriculture (cropland/pasture) Land Cover
Aerial photography, when read by experts, provides the most accurate accounting for actual land use. The Smithsonian Institution, as part of an effort to identify wildlife habitats, also identified

agricultural activities.

These four designations have significant overlap. It is possible for a parcel to be in one category but not in the other three, depending on site-specific circumstances.

Below is a table listing the land area of the County and the Towns of Berryville and Boyce according to current land use, and a table listing land area by zoning district classification:

TABLE 17 – Current Land Use

LAND USE TYPES	Berryville (acres/%)	Boyce (acres/%)	County East (acres/%)	County West (acres/%)	Total (acres/%)
Urban Residential*					
With Dwellings	677/0.6%	117/0.1%			794/0.7%
Without Dwellings	233/0.2%	610/0.05%			294/0.3%
Suburban Residential**					
With Dwellings			2,324/2.0%	3,657/3.2%	5,981/5.2%
Without Dwellings			1,035/0.9%	675/0.6%	1,710/1.5%
Rural Residential***					
With Dwellings			3,006/2.6%	4,836/4.2%	7,842/6.9%
Without Dwellings			1,069/0.9%	1,300/1.1%	2,369/2.1%
Agricultural					
20 to <100 acre parcels			10,046/8.8%	29,552/25.9%	39,598/34.7%
100+ acre parcels			7,229/6.3%	40,925/35.9%	48,154/42.2%
Other<sup>◇</sup>					
Govt. parcels			2,280/2.0%	1,095/1.0%	3,375/3.0%
Commercial****			6/0.005%	167/0.1%	173/0.2%
Shenandoah River					946/0.8%
Roads					2,396/2.1%

Sources: Clarke County GIS and Commissioner of the Revenue records

Note: Parcels located in the County may be included in more than one use type. Land use types are derived from designations used by the Commissioner of the Revenue.

* Urban Residential – Limited to parcels located in the Towns of Berryville and Boyce

** Suburban Residential – Limited to parcels located in the County and less than 6 acres in size

*** Rural Residential – Limited to parcels located in the County and between 6 and 20 acres in size

****This item does not include commercial acreage located within the Towns of Berryville and Boyce (see Table 18)

Total acreage of County – 114,103 (source GIS)

<> ***Other is a category that includes land uses that do not fit within the larger land use categories, such as land owned by government entities, commercially zoned property, land within public rights-of-way, and land that includes the Shenandoah River.***

TABLE 18 – County Zoning Districts; Land Uses in Berryville and Boyce

<i>Land Use Categories</i>	Acres	%
Agricultural-Open Space-Conservation (AOC)	82,924 84,112*	72.0% 72.7%
Forestal-Open Space-Conservation (FOC)	27,054 27,048	24.0% 23.7%
Rural Residential	801	0.7%
Neighborhood Commercial	27 33	<.01%
Highway Commercial	131 143	0.1%
Light Industrial	0	0.0%
Boyce	239 232	0.2%
Residential	209 204	
Commercial	30 28	
Berryville	1,486 1,462	1.3%
Residential	1,041 1,045	
Commercial	280 384	
Berryville Annexation Area	241 257	0.2%
Residential	152 156	
Commercial	6 26	
Institutional/Open Space	83 75	
Industrial	0	
Total Acreage	114,039 114,103	100.0%

** includes 946 acres of Shenandoah River*

2. Zoning and Subdivision

In 1980, Clarke County adopted a method of rural land preservation known as sliding-scale zoning. The primary purpose of sliding-scale zoning is to preserve agricultural land and the rural character of the County. This is accomplished by limiting the number of parcels that may be created, limiting the size of new parcels, and keeping residual parcels as large as possible. Sliding-scale zoning allocates dwelling unit rights (DURs) for parcels of land and a maximum number of dwelling units that may be built in the Agricultural/Open Space/Conservation (AOC) Zoning District and Forestal/Open

Space/Conservation (FOC) Zoning District. That number cannot be increased unless parcels are rezoned in designated growth areas but is decreased as landowners build houses or place their property under permanent open-space easement. Approximately ~~22,000~~ **27,111** acres of the County have been placed in permanent open-space easement. An additional 4,000 acres is recreational open space, primarily the Appalachian Trail.

A total of ~~6,646~~ **6,696** DURs were initially allocated when sliding-scale zoning was implemented in 1980. ~~This number has been adjusted to 6,541 to account for periodic auditing and retirement of DURs.~~ As of December ~~2012~~ **2021**, a total of ~~3,699~~ **3,412** DURs remain unused. ~~This equates to 2,541 DURs in AOC areas west of the Shenandoah River, and 1,158 DURs in FOC areas east of the river.~~ When all DURs have been used in the AOC and FOC areas, the number of dwelling units in the rural portion of the County is intended to remain stable in perpetuity.

There are also areas of higher density residential parcels located in the unincorporated areas of the County that are zoned Rural Residential (RR). The Rural Residential zoning designation was used to identify concentrations of residential development that existed prior to the 1980 implementation of sliding-scale zoning. These areas include the villages of Millwood and White Post, Shenandoah Retreat, and scattered parcels around the towns of Berryville and Boyce. RR-zoned parcels do not have DURs assigned to them and are instead governed by minimum lot size and other dimensional standards. Although there are some undeveloped RR-zoned parcels remaining, full build-out of these parcels would have a minimal impact on the total number of dwellings in the County. The RR zoning designation is not intended to be used to create new residential developments or to expand the number of parcels in existing developments or villages.

Analysis of subdivision records from 1970 to 2005 shows two important trends. The population of Clarke County (outside the Berryville Area) and the number of households continued to grow, albeit at a slower rate in the 1990s, compared with the 1980s and the first half of the 2000s. However, parcel creation occurred more slowly when compared to the number of new houses. There were 2.0 new houses built for every lot created in this decade compared to 1.8 houses for every new lot in the 1990s. In addition, the average number of new lots created per subdivision decreased significantly, along with the acreage involved in subdivisions. These trends continued into the ~~current~~ past two decades, showing the impact of the County’s policies to direct residential growth. These trends are very significant when compared with the rates of growth in Loudoun and Frederick Counties.

TABLE 19 – Lots Created & Houses Built Outside of the Towns of Berryville and Boyce

	1970-1979	1980-1989	1990-2000	2001-2011 2001-2010	2011-2020
Lots Created	456	350	330	312	64
Houses Built	777	665	624	516	253

To complement the land preservation elements of sliding-scale zoning, the County and Town of Berryville have jointly adopted the Berryville Area Plan (BAP) as a master plan for the development of County lands planned for annexation into the Town of Berryville. As estimated in 1992, the BAP allows for approximately 500 new dwellings to be developed and annexed to the Town of Berryville.

The total number of housing units expected in the Berryville area at full build-out is about 2,200 (1,100 existing + 600 new in pre-1989 town limits + 500 new in annexation area). Based on adopted policies and zoning regulations, the Town population would increase from 4,185 in 2010 to about 5,500 at full build-out (assuming 2.5 people per household, county average in the 2000 Census).

In the 2000s, three major subdivisions were developed in the Town of Boyce that added a total of 112 new lots. As of 2013, development in these subdivisions has either reached or is close to full build-out.

Currently, there are 280 acres of commercially zoned land in Berryville, 6 acres to be annexed by Berryville, 30 acres in the Town of Boyce, and 158 acres elsewhere in the County (Double Tollgate, Waterloo, etc.), for a total of 474 acres of land in the County zoned commercial. This does not include the 248 acres of light industrial or business park zoning. The Urban Land Institute defines a neighborhood commercial center as ranging from 3 to 10 acres, with a minimum resident population ranging from 3,000 to 40,000. A community commercial center ranges from 10 to 30 acres, with a minimum resident population ranging from 40,000 to 150,000 (*Shopping Center Development Handbook, Third Edition, Washington, DC: ULI-the Urban Land Institute, 1999, page 13*).

Comparing anticipated population growth against the area currently zoned commercial suggests that additional commercial zoning will not be necessary. However, the location of some of the current commercially zoned property may not meet market needs, and some, because of location and other factors, is unlikely to be developed. The rezoning of such properties to more usable zoning districts or districts that are consistent with the property's current use, as well as consideration of additional commercial zoning, should be evaluated in conjunction with the creation of the County's Economic Development Strategic Plan.

Analysis of subdivision growth has shown favorable results since the adoption of sliding scale zoning in 1980. If sliding scale zoning, in conjunction with the goals expressed in the Comprehensive Plan, continues to prove successful, modest population changes will result in the future. Based upon current projections, the population of Clarke County could reach ~~15,871~~ **15,560** residents by the year ~~2030~~**2035**. Total population growth may not be significantly altered by the current policies, but growth will continue to be directed to the Towns and designated growth areas as outlined in the Comprehensive Plan. This effect will become more pronounced as dwelling unit rights are used up in the rural portions of the County.

I. PUBLIC INFRASTRUCTURE AND SERVICES

This section provides a summary of the public infrastructure elements and services provided by the local government entities in Clarke County.

1. Water and Sewer

Public water and public sewer services are provided to the incorporated towns, business intersections, and some villages and unincorporated areas on a limited basis. Those areas not served by public water and public sewer rely on private groundwater wells and private onsite sewage disposal systems.

Town of Berryville Water and Sewer

The Town of Berryville is served by a surface water treatment facility located in the County with a raw water withdrawal from the Shenandoah River. The Berryville Water System provides approximately 1,600 residential and commercial service connections. The average daily water production is 380,000 gallons per day, with a permitted design capacity of 864,000 gallons per day. The combined water tank capacity for use by residents of the Town of Berryville is 3,500,000 gallons.

The Berryville Wastewater Treatment Facility is an advanced treatment Membrane Bioreactor utilizing two stage preliminary screening, grit removal, flow equalization, advanced activated biosolids treatment, 0.04 micron filtration, and ultraviolet disinfection. The design capacity is 0.7 MGD with a peaking factor of 2.1 MGD daily max hydraulic load. Solids management is handled by two rotary fan presses and biosolids are currently used for landfill reclamation by the Frederick County Landfill. This facility has been operating since September 2012 and consistently produces an effluent meeting stringent water quality criterion. This system is designed to handle the Town's needs for the next twenty plus years and is designed to expand as needed in the future to accommodate growth.

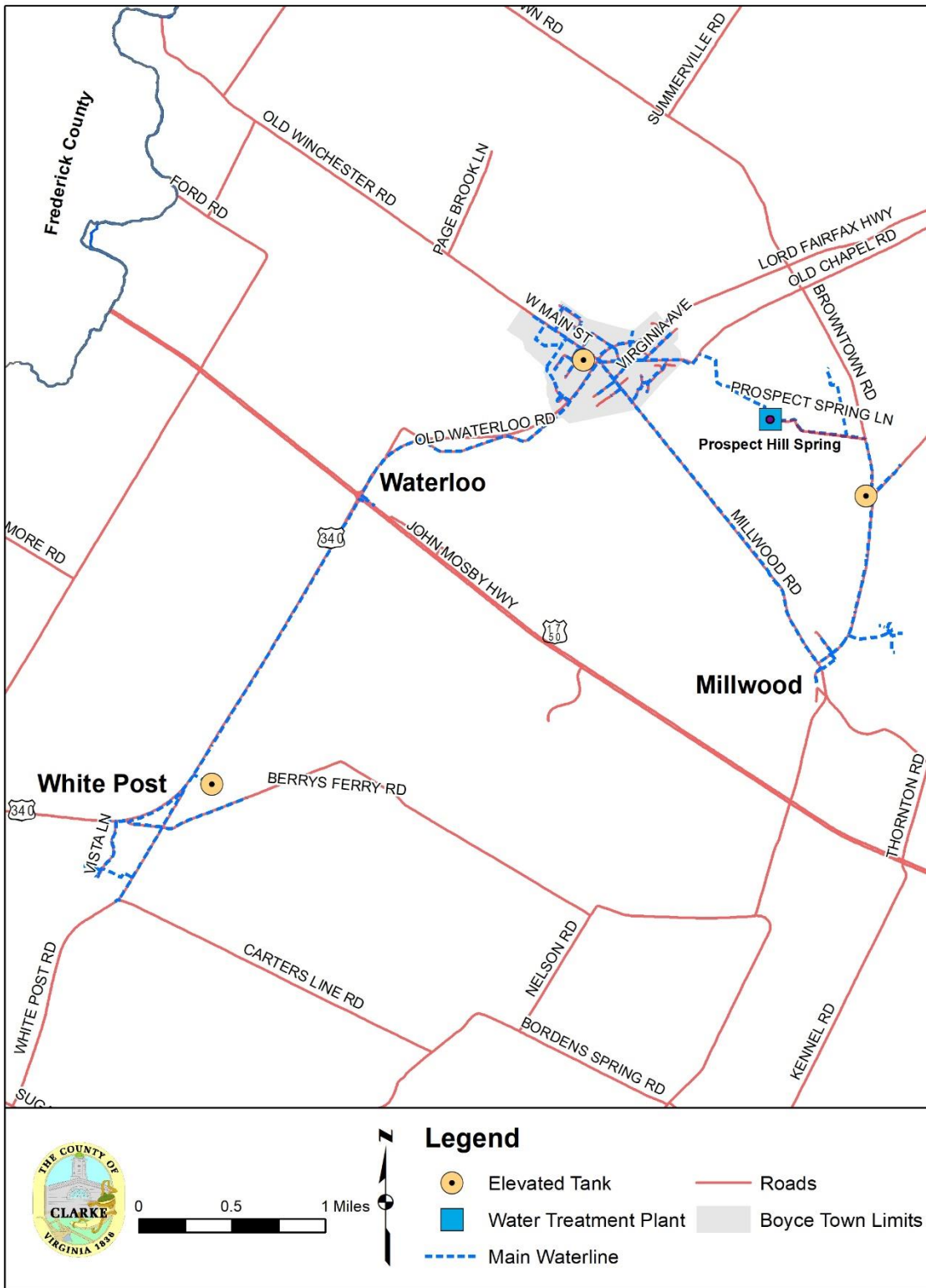
The Town's wastewater is conveyed to the treatment plant through a series of underground pipes and pumping stations. The collection system is also going through continual upgrades and repairs through regularly scheduled maintenance by the Town.

County Water and Sewer -- Clarke County Sanitary Authority

The Clarke County Sanitary Authority operates the public water and sewer systems that serve the Town of Boyce, the unincorporated village of Millwood, the unincorporated village of White Post (water only), and commercial-zoned properties at the Waterloo intersection (U.S. 50 and U.S. 340). The Authority is responsible for Prospect Hill Spring, the public water supply for approximately 400 households and businesses. The Authority is also responsible for the operations of the Boyce Sewage Treatment Facility located in the Town of Boyce. The Authority contracts with Imboden Environmental Services, Inc., as a consultant to assist with water and sewer system operations.

The Authority is governed by a five-member board that is appointed by the Board of Supervisors. Authority members serve four-year terms and one member is required to be a resident of the Town of Boyce.

Map 8, County Water Lines



Map 9, County Sewer Service District



Public Water and Sewer Expansion Efforts

In response to changes in ownership of the former State-owned property adjacent to the Double Tollgate Plan Area and requests from owners of property within the Plan Area, the County began efforts in 2021 to obtain public water and public sewer service from Frederick County. Clarke officials requested the Frederick County Board of Supervisors to authorize its authority, Frederick Water, to extend service to Double Tollgate and provide up to 150,000 gallons per day of water and sewer services. The Frederick Board voted to approve this authorization in October 2021. As of the drafting of this Plan, negotiations between Clarke County and Frederick Water remain in process.

Additional information on public water and public sewer may be found in the Water Resources Plan.

2. General Government -- County Administration

Clarke County is governed by a five-member board that is elected by the citizens to serve four year terms. The County's chief administrative officer is the County Administrator who serves at the pleasure of the Board and manages the County Administration Office.

The County Administration Office directs and supervises the day-to-day operations of all county departments and agencies that are under the direct control of the Board of Supervisors, pursuant to county ordinances and regulations. The Office also serves as the Board's official liaison to the constitutional officers, the judiciary, state and regional agencies. In addition, the Office provides administrative support to the Board of Supervisors, and the Office implements directives with regard to board agendas, meetings, resolutions, and constituent services.

The County Administration Office is the primary point of contact for citizens seeking information regarding county activities. Duties include responding to Freedom of Information Act requests, clerking various boards and commissions, and serving as the records custodian for various county documents. The Office also handles special event applications.

The County Administration Office provides human resources support for county employees, serves as the Conflict of Interest Officer for all boards, committees, and commissions, and answers the main county government phone.

The Berryville-Clarke County Government Center is shared with the Town of Berryville and the Clarke County Library. In addition to housing the County Administration Office and Board of Supervisors/Town Council meeting room, the following departments are also located in the Government Center:

County

- *County Administration*
- *Department of Planning*
- *Commissioner of the Revenue*
- *County Treasurer*
- *Building Department*
- *Department of Fire, Emergency Medical Services, and Emergency Management*
- *Registrar*

- *Information Technology*

Town of Berryville

- *Town Manager's Office*
- *Planning*
- *Police Department*
- *Town Business Office*

3. Law Enforcement, Public Safety Communications, and Animal Control

Law Enforcement -- County

The Clarke County Sheriff's Office (CCSO) provides law enforcement for the County's unincorporated areas and the Town of Boyce. Clarke County Sheriff's deputies patrol county roads, control traffic, investigate crimes, escort prisoners, provide courthouse and courtroom security, and serve legal documents. The Sheriff's Office is accredited by the Virginia Law Enforcement Professional Standards Commission, and it is a member of the Northwest Virginia Regional Drug and Gang Task Force. The Sheriff is a constitutional officer elected by the citizens for a four-year term.

The CCSO is located at 100 N. Church St. in Berryville.

Law Enforcement -- Town of Berryville

The Berryville Police Department provides law enforcement for the Town of Berryville. The Department also provides several community services such as fingerprinting of children for identification purposes, house checks while occupants are out of town for extended periods of time, youth substance abuse awareness and prevention programs, formation and organization of Neighborhood Watch programs, Child Safety Seat Installation/Inspection, bicycle safety and security programs and other public safety and security programs by special arrangement. The Department is led by the Chief of Police who is appointed by the Town Manager.

The Police Department is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville.

Town of Boyce

The Town of Boyce does not operate its own police department and relies on the Clarke County Sheriff's Office for law enforcement. The Town does employ a code enforcement officer to enforce various provisions of the Town Code.

Public Safety Communications

The Emergency Communications Center is responsible for around-the-clock dispatch of emergency (911) and non-emergency (540-955-1234) calls in the towns and county-wide. The Emergency Communications Center and Sheriff's Office maintain emergency contact information for owners of livestock (cattle, horses, sheep, etc.) so contact can be made in the event animals are reported running loose or injured. The Emergency Communications Center is located at 100 N. Church St. in Berryville.

Animal Control

Animal Control functions are operated as a partnership between the Clarke County Sheriff's Office and Clarke County Animal Shelter to ensure the health and safety of domestic animals, including livestock, within the County, Town of Berryville, and Town of Boyce.

The Clarke County Animal Shelter is managed by Clarke County but is owned by the Clarke County Humane Foundation, a 501(c)(3) corporation. It is located at 225 Ramsburg Lane in Berryville.

4. Fire, Rescue, and Emergency Management

Fire, Rescue, and Emergency Management

Clarke County operates a combined volunteer-career system which relies heavily on the efforts of trained volunteer firefighters and emergency medical technicians supported by paid personnel provided by the County. The County is served by three fire and rescue stations:

- *John H. Enders Fire & Rescue Company located at 9 South Buckmarsh Street in Berryville*
- *Blue Ridge Volunteer Fire and Rescue Company at 131 Retreat Road adjacent to Shenandoah Retreat.*
- *Boyce Volunteer Fire Company located at 7 South Greenway Avenue in Boyce.*

The Department of Fire, Emergency Medical Services (EMS) & Emergency Management coordinates all services of Clarke County's three volunteer fire and rescue companies as well as all emergency preparedness planning and response for the county. It manages paid EMS staff and the Fee for Service program. The Department oversees professional responses to fire, medical, and environmental emergencies. The Department is dedicated to minimizing the loss of life and property through fire suppression, rescue, education, and other programs.

The Department is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville.

5. Library

The Clarke County Library is a branch of the Handley Regional Library system and is located in the Berryville-Clarke County Government Center at 101 Chalmers Court in Berryville. Access to the library and its resources are free to residents of Clarke and Frederick Counties and the City of Winchester. In addition to books, audio resources, and visual resources, the Library is equipped with public computers, WiFi access, and meeting rooms.

6. Schools

Clarke County Public Schools operates four public schools for grades K-12:

- *D.G. Cooley Elementary School located at 240 Westwood Road in Berryville.*
- *Boyce Elementary School located at 119 West Main St. in Boyce.*

- *Johnson-Williams Middle School located at 200 Swan Ave. in Berryville.*
- *Clarke County High School located at 627 Mosby Blvd. in Berryville.*

Clarke County Public Schools is overseen by the Clarke County School Board, a five-member board that is elected by the citizens of the County. Administrative offices are located at 317 West Main Street in Berryville.

7. Parks & Recreation (see Recreation Plan for non-County resources)

Clarke County Parks & Recreation Department

The Clarke County Parks & Recreation Department manages county-owned Chet Hobert Park, a 102-acre property west of Berryville. The park includes an outdoor swimming pool, 6 lighted outdoor tennis courts, 6 baseball-softball fields, 5 picnic shelters, 2 playgrounds, a 2-mile fitness trail, a dog park, and 13 soccer fields of various sizes. The Clarke County Recreation Center has exercise equipment, a gymnasium, meeting rooms, and kitchen. One room serves as the Clarke County Senior Center, offering programming and lunch for seniors four days each week. The Department offers a wide variety of activities and programs for people of all ages.

Chet Hobert Park and the Clarke County Recreation Center are located at 225 Al Smith Circle in Berryville.

Clarke County Public Schools Facilities

Clarke County Public Schools operate a number of active recreation facilities used primarily for school athletics but also for limited use by the public. This includes a football/soccer stadium, baseball/softball fields, track, playgrounds, and indoor/outdoor basketball (limited access).

Town of Berryville

The Town of Berryville owns and maintains the three-acre Rose Hill Park in the heart of downtown Berryville. Rose Hill Park provides a great place for families to relax and enjoy a peaceful outing. Park facilities include a playground designed for younger citizens, basketball courts, and a gazebo.

Kohn property

The Kohn property is a currently undeveloped site located off Ebenezer Road that was gifted to the County. This property consists of 50 acres of mountain woodlands that was placed in conservation easement with the County by the owner. The deed of easement specifies the intended use for environmental education, passive recreation, and bird/wildlife watching. As a county facility, the Parks and Recreation Department and Advisory Board is tasked with developing a master plan for this facility.

The Recreation Component Plan contains additional information on the County's active and passive recreational resources.

8. Health and Human Services

Department of Social Services

Clarke County Department of Social Services (CCDSS) is the local administered office of the Virginia Department of Social Services. CCDSS administers Child Protective Services, In-Home and Prevention Services, Foster Care, Fostering Futures, and Adoption for families and children. CCDSS also provides Adult Protective Services and Adult Services for the elderly and disabled. In addition to services programs, Clarke County Department of Social Services administers benefit programs such as the Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps), Medicaid, Temporary Assistance for Needy Families (TANF), Child Care Subsidy, Employment Assistance, and Energy Assistance programs.

CCDSS offices are located at 311 East Main Street in Berryville.

Virginia Department of Health

The Clarke County Health Department — part of the Virginia Department of Health — is within the Lord Fairfax Health District, which serves the Northern Shenandoah Valley. The Health Department administers clinical services, environmental health services, and the Woman Infants and Children’s Program (WIC).

The Virginia Department of Health Clarke County currently leases office space located at 100 North Buckmarsh Street in Berryville.

Northwestern Community Services

Northwestern Community Services (NWCS) offers an array of outpatient, case management, day support, residential and emergency programs that are designed to enhance the quality of life for both children and adults affected by emotional/behavioral disorders, mental illness, substance use, and intellectual disabilities and developmental disabilities (ID/DD). NWCS specializes in rehabilitative and family support services for individuals with such long-term challenges as schizophrenia, bipolar disorder, major depression, addiction, and those with significant impairments from ID/DD. NWCS also provides 24-hour emergency evaluation, short-term treatment and hospital referral to individuals having mental health, emotional, substance use, or behavioral crises that pose a safety risk to themselves or others.

Northwestern operates several facilities throughout the northern Shenandoah Valley. The Clarke County clinic is located at 309 West Main Street in Berryville. This clinic provides services for adults and children, including Mental Health Case Management and Medication Management.

9. Joint Administrative Services

Joint Administrative Services (JAS) was developed in a unique partnership between the Clarke County Board of Supervisors and the Clarke County School Board to share the costs and resources of certain common governmental functions. JAS is charged with managing the following day-to-day functions for both the County and Schools that would ordinarily be managed by separate departments:

- *Budgeting*

- *Accounts payable*
- *Payroll*
- *Purchasing*
- *Risk management*

JAS is overseen by a five-member appointed board which includes one School Board representative and one Board of Supervisors representative. JAS offices are located at 317 W. Main St. in Berryville.

10. Transportation

Public roads in Clarke County – both primary and secondary -- are maintained by the Virginia Department of Transportation (VDOT). Secondary roads in the Town of Berryville are maintained by the Town while Main Street (Va. Route 7) and Buckmarsh Street (U.S. 340) are maintained by VDOT.

The Town of Boyce maintains several private streets located within its jurisdiction. Maintenance of all private roads in the County are the sole responsibility of the property owners.

The Transportation Plan contains additional information about the County's road network and priority transportation improvement projects.

CHAPTER II

Goals, Objectives, and Policies

1. Agriculture
2. Mountain Resources
3. Natural Resources
4. Historic Resources
5. Conservation Easements
6. Outdoor *Recreational* Resources
7. Energy Conservation and Sustainability
8. Village Plans (Millwood, Pine Grove, White Post)
9. Designated Growth Areas for Development
10. Economic Development
11. *Public Infrastructure*, Capital Improvement Planning, and Fiscal Responsibility
12. Transportation
13. *Broadband Internet Access*
~~Citizen Participation in the Planning Process~~

GOALS

The goals for land use planning in Clarke County are to:

1. Preserve and protect the agricultural, natural, and open-space character of unincorporated areas;
2. *Focus development within designated planning areas including incorporated towns and established village and commercial areas, utilizing design elements that balance compatibility with each community's needs and unique character.*
- ~~2. Enhance town, village, and commercial areas through context sensitive design and walkability elements to improve the quality of life for residents;~~
3. Encourage and maintain a diverse and viable local economy compatible with the County's size and character; ~~and.~~
4. Exercise stewardship over resources so as to reduce the consumption of nonrenewable resources, utilizing renewable energy whenever possible; and foster within the private sector of the County a culture of resource conservation.
5. Provide for the economical delivery of necessary public services *in conformance with the Comprehensive Plan and its implementing component plans* ~~consistent with these goals.~~
6. *Prevent significant degradation of natural resources. "Significant degradation" is a measurable negative reduction in the quality or quantity of a natural resource.*
7. *Understand that policy decisions are precedent-setting and ensure that all such decisions are carefully and thoughtfully examined to determine their consistency with the Comprehensive Plan, the implementing component plans, and with the County's land use philosophy.*

OBJECTIVES

Objective 1 -- Agriculture.

Encourage agricultural operations and productivity to ensure the preservation and availability of land for the continued production of crops and livestock through the following policies and the Agricultural Land Plan. *Ensure that any limited residential, commercial, and other non-agricultural uses and activities do not result in significant degradation to natural resources or disrupt the character and functionality of agricultural areas.*

Policies

1. Promote and protect agriculture as the primary use of land in rural areas and inform the public of benefits of this policy.

2. Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with individual agricultural interests within the County and with advocacy agencies, and liaisons with counties in the area that have similar development programs.
3. Utilize the Agricultural Land Evaluation and Site Assessment (LESA) System to assess accurately the suitability of land for continued agricultural use. The LESA system provides an objective evaluation tool that scores the soils and physical conditions of a parcel for agricultural use.
4. Make land use decisions and plans that are consistent with LESA ratings. Approve conversion of important farmland to nonfarm use only if ~~an~~ ***a significant*** overriding public need exists to change the land use ~~and the existing development areas cannot accommodate the new use~~. ***Important farmland consists of soils that are best suited to food, feed, fiber, forage, and oilseed crops and includes areas containing:***
 - ***Prime farmland***
 - ***Farmland of statewide importance***
 - ***Farmland of local importance***
 - ***Unique farmland***

Adopt regulations to limit future development in these important farmland areas in order to maximize the amount of land available for agricultural production.
5. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality by the following methods:
 - a. Making technical assistance available.
 - b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, storm water management and Chesapeake Bay Preservation Regulations.
 - c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
 - d. Encouraging ~~the participation of~~ all landowners engaged in agricultural activities to use the assistance of the Virginia Cooperative Extension Service, the Natural Resource Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.
6. ***Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with agricultural activities in the area of the county west of the***

Shenandoah River. Such residential development shall be consistent with the County's sliding-scale zoning regulations and shall not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation. Prohibit the rezoning of Agricultural-Open Space-Conservation (AOC) zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages for new residential development. The purpose is to avoid loss of farmland, to avoid sprawl development, and to avoid consumption of potential conservation lands and open space.

- ~~6. Provide limited, low density residential opportunities in unincorporated areas in a manner compatible with agricultural activities in the area of the county west of the Shenandoah River. Such residential development should include the following characteristics:
 - ~~a. Should not be located on Important Farmland, as determined by the County's Land Evaluation and Site Assessment (LESA) rating system.~~
 - ~~b. Should be on a minimum area sufficient to provide proper placement of a dwelling, related accessory structures, well, and septic system.~~
 - ~~c. Should be located in or substantially bounded by natural or cultural features, such as wooded areas, railroads, or public roads that would buffer them from agricultural lands.~~
 - ~~d. Should be located away from natural and cultural resources such as the Shenandoah River and the Blandy Experimental Farm and State Arboretum.~~
 - ~~e. Should be compatible with the environmental features of that land and should not diminish natural and scenic values.~~
 - ~~f. Should respect environmental limitations and protect natural features during and after the development process.~~
 - ~~g. Should be consistent with the County's sliding scale zoning philosophy and should not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation.~~~~
- ~~7. Strongly discourage the rezoning of agricultural zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages to avoid loss of farmland, sprawl development, and consumption of potential conservation lands and open space.~~
- 7 8. To the maximum extent possible, separate nonagricultural land uses from *existing* agricultural lands and operations. Where nonagricultural operations are adjacent to *existing* agricultural operations, the nonagricultural operations should provide buffering in the form of fencing, landscaping, and open space, ~~and by inclusion of the~~ *Require a right-to-farm warning notice to be included* within the deed of dedication *for new subdivisions in agricultural-zoned areas to promote awareness of living within an agricultural community.*
- 8 9. With the exception of telecommunication and high-speed internet facilities, discourage extension of public utilities, *including but not limited to public water and public sewer,*

and other growth-inducing public facilities into agricultural areas and land under permanent conservation easement.

~~9~~ 10. Encourage all government agencies to consider the impacts that their programs and projects may have on maintaining the availability and use of agricultural land. Encourage them to eliminate or minimize adverse impacts.

~~10~~ 11. Promote and support the renewal and expansion of the Clarke County Agricultural and Forestal District program by providing information on its benefits and incentives to associated farmland owners, timberland owners, and farm organizations. Use the Land Evaluation and Site Assessment (LESA) System for the objective and consistent evaluation of applications for additions to the Clarke County Agricultural District.

~~11~~ 13. Support use-value taxation and other fiscal programs that help to alleviate economic burdens on owners of land used for agricultural, horticultural, forest, or open-space purposes (Code of Virginia, Section 58.1-3230, as amended). ~~Continue to implement~~ *Promote existing and explore alternative* strategies to protect agricultural land from escalating assessments as a result of development pressures.

~~12~~ 14. Evaluate and consider implementing innovative land-conserving techniques as authorized by State law.

~~15. Refine and strengthen the Agricultural Land Plan to include specific strategies pertaining to agribusiness and agritourism concepts.~~

13. Agribusiness uses and activities are encouraged provided that:

- a. They are compatible in scale to and intensity with surrounding agricultural uses.*
- b. They pose no threat to public health, safety, and welfare.*
- c. They further the goal of preserving farmland, open space, and the County's scenic beauty and historic resources.*
- d. They do not result in significant degradation of natural resources.*

14. Agritourism uses and activities are encouraged as a means of facilitating the onsite sale of farm products and promoting agricultural education and appreciation. All agritourism activities shall be incidental to and directly supportive of the primary agricultural use on the property. Any agritourism activities or uses that exceed the intensity of the primary agricultural use shall either be prohibited or be approved by special use or other governing body permitting action.

Objective 2 – Mountain Resources.

Preserve the natural beauty and protect the ecology of ~~forested areas~~ *lands located east of the Shenandoah River* to ensure that development in those areas is in conformance with their environmental limitations through the following policies. *Applicable policies are found in this Objective, Objective 3 (Natural Resources), and the Mountain Land Plan. Recognize that the wooded and steep landscape of the mountain areas poses unique challenges to development and that regulations should be developed to address these characteristics.*

Policies

- ~~1. Promote multiple uses of forested land that are nonintensive and compatible, such as outdoor recreation, wildlife habitats, watershed protection, and forest management.~~
- ~~2. Ensure that timber harvesting is conducted in accordance with Virginia Department of Forestry and Chesapeake Bay protection standards. Also ensure that an approved forest management plan is in place for each site so that sedimentation of streams and other environmental impacts are minimized.~~
- 1. Collaborate with agencies, organizations, and surrounding counties to develop plans and strategies to mitigate transportation, development, and other current and future impacts on mountain lands.**
- ~~2~~ **3.** Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by the Federal Total Maximum Daily Load (TMDL) program to improve water quality through the following methods:
 - a. Making technical assistance available.
 - b. Promoting public awareness on the benefits of, and necessity for, best management practices, erosion and sedimentation controls, stormwater management and Chesapeake Bay Preservation Regulations.
 - c. Assisting in the establishment of conservation plans for all farms adjacent to perennial streams.
 - d. Encouraging the participation of all landowners engaged in forestal activities to use the assistance of the Virginia Department of Forestry, the Natural Resources Conservation Service, the Lord Fairfax Soil and Water Conservation District, and other public agencies.
 - e. Supporting these and other innovative efforts to ensure continued water quality improvements in the future.
- ~~3~~ **4.** Provide limited, low-density residential opportunities in unincorporated areas in a manner compatible with *agricultural and* forestal activities in the area of the county east of the Shenandoah River. Such *residential development shall be consistent with the County's*

sliding-scale zoning regulations, and shall not involve rezoning to a higher residential density to exceed the parcel's dwelling unit right allocation. Regulations for residential development ~~should~~ shall include the following characteristics.

- a. ~~Should~~ **Shall** be on a minimum area sufficient to provide proper placement of a dwelling, related accessory structures, well, and septic systems.
 - b. ~~Should~~ **Shall** not be located on steep slopes; *or areas with* slippage soils, ~~or~~ *ridgelines*.
 - c. *Shall avoid ridgelines to the maximum extent practicable when developing a lot unless a ridgeline building site would produce the lowest potential for adverse environmental impacts and natural resource degradation.*
 - d. ~~Should~~ **Shall** recognize the fragile nature of the soils and slopes, understanding that trees protect these features from erosion and clearing should be limited. *Forestry best management practices and other acceptable measures shall be used during construction and afterwards to reduce erosion, preserve trees, and maintain the scenic beauty of mountain areas.*
 - e. ~~Should~~ **Shall** be compatible with the ~~environmental~~ *natural* features of that land and ~~should~~ **shall** not diminish natural and scenic ~~values~~ *assets*.
 - f. ~~Should~~ **Shall** respect environmental limitations and protect natural features during and after the development process.
 - f. ~~Should be consistent with the County's sliding-scale zoning philosophy and should not involve rezoning to a higher residential density to produce additional lots above the parcel's dwelling unit right allocation.~~
- 4 5. ~~Strongly discourage~~ **Prohibit** the rezoning of ~~forestal~~ *Forestal-Open Space-Conservation (FOC)* zoned properties to the Rural Residential District (RR) in areas outside of designated growth areas and villages *for new residential development. The purpose is* to avoid loss of forest, *to avoid* sprawl development, and *to avoid* consumption of potential conservation lands and open space.
- 5 6. Promote the protection of lands adjoining or visible from the Appalachian National Scenic Trail, the Shenandoah River, and other public lands. Protect the scenic value of those lands when making land use decisions and plans.
7. ~~Promote the addition of forestal lands to the Clarke County Agricultural and Forestal District program by providing information on the program's benefits and incentives to owners of timber lands.~~

- 6 8. Work proactively with the Mount Weather Emergency Operations Center *and the Federal Emergency Management Agency (FEMA)* to encourage compatible development, public notice, and public input opportunities for future expansion projects as well as continued communication and cooperation.

Objective 3 – Natural Resources.

Protect natural resources, including *but not limited to* soil, water, air, *scenery viewsheds*, night sky, wildlife habitats, and fragile ecosystems through the following policies, the Water Resources Plan, and other adopted policies.

Policies

1. *Prohibit land uses that are likely to result in significant degradation to the County's natural resources. Focus should be placed upon but not be limited to ground and surface water quality and quantity in Karst topography, steep slopes, and the Shenandoah River. Regulations should be adopted to establish measurable thresholds that the County uses to determine what constitutes significant degradation of a natural resource.*
- ~~1. Prohibit land uses that have significant adverse environmental impacts, recognizing, especially the interrelationships among natural resources, especially between ground and surface waters in Karst topography and steep slopes.~~
2. Ensure that adverse environmental impacts of activities directly or indirectly related to construction are minimized. Require effective mitigation when impacts occur, *including but not limited to* such as *tree and vegetation* removal ~~of vegetation, cutting of trees,~~ *drainage-way alteration* ~~altering drainage ways,~~ and grading, and filling. Provide for effective, proactive enforcement when necessary *to prevent substantial damage to natural resources and adjacent properties.*
- 3 4. Manage and protect floodplains by the following methods:
 - a. Limiting structures, uses, and activities in the 100 year floodplain that cause sedimentation, harm to property *and water quality*, and *other* adverse impacts due to the risk of floating debris and bank erosion.
 - b. Enforcing floodplain management regulations so that residents continue to be eligible for flood insurance under the National Flood Insurance Program.
 - c. Prohibiting installation of drain fields in the 10 year floodway.
 - d. Discouraging the use of drain fields within the 100 year floodplain.
- ~~3. Maintain, implement, and continue to enforce the County's strong Erosion and Sedimentation Control and Stormwater Management Ordinances.~~

- 4 5.** Recognizing that the Shenandoah River is a state-designated Scenic River and is one of the County's significant environmental and recreational resources, provide for its protection by the following methods:-:
- a. Cooperating with state agencies in developing a river corridor management plan.
 - b. Limiting development within the River's 100-year floodplain.
 - c. Promoting the placement of conservation ~~and scenic~~ easements on lands within view from the River ~~and seeking~~ to protect the scenic value of those lands when land use decisions and plans are made.
 - d. Promoting ~~initiatives efforts~~ to reduce bank erosion, ~~evaluate limiting~~ the impact of new or expanded private river accesses (e.g, docks and ramps), ~~protecting~~ canoeists and other recreational users, and ~~minimizing~~ noise levels.
 - e. Considering participation in a regional Shenandoah State Scenic River Advisory Board and/or establishing a local board or committee to provide guidance and develop programs to protect and enhance the river's scenic beauty.
 - f. *Promoting awareness of public parking areas and access points to encourage usage of these resources and as a means of discouraging roadside parking and unauthorized river access points.***
- 5 6.** Apply best management practices to protect local and regional water resources and environmentally sensitive areas such as the Shenandoah River, Opequon Creek, perennial streams, floodplains, wetlands, steep slopes, slippage soils, and highly erodible soils. Establish specific water quality performance guidelines to include Chesapeake Bay Resource Protection and Resource Management Areas when considering land use and development related activities.
- 6 7.** Identify and inventory environmentally significant land suitable for the preservation and conservation of natural resources. Encourage landowners to apply for preservation programs such as the Agricultural and Forestal District program (AFD) as well as applicable use-value taxation for such lands as "real estate devoted to open space use" (Code of Virginia, Section 58.1-3230). Such real estate includes parcels adjacent to designated scenic rivers, wetlands, designated scenic highways, ~~and~~ registered historic structures. Such real estate also includes lands adjacent to or under permanent ~~conservation open space~~ easement or lying within the 100-year floodplain.
- 7 8.** Prohibit new or expanded mining, oil, or gas-drilling operations.
- 8 9.** Promote the placement of ~~scenic conservation~~ easements on lands adjoining or visible from roads designated as Scenic Byways and protect the scenic value of those lands when making land use decisions and plans.

~~9~~ ~~10~~. *Promote the concept of linear greenways to link natural features, wildlife corridors, and cultural and scenic resources such as:*

- *Designated scenic rivers*
- *Designated scenic highways*
- *Registered historic properties*
- *Permanent conservation easements*
- *Recreation facilities*
- *Blandy Experimental Farm*
- *Shenandoah University's Shenandoah River Campus*
- *Appalachian Trail*

~~Promote the concept of linear greenways to link natural features, wildlife corridors, cultural and scenic resources, such as designated scenic rivers, designated scenic highways, registered historic properties, permanent open space easements, recreation facilities, Blandy Experimental Farm, Shenandoah University's Shenandoah River Campus, and the Appalachian Trail.~~

~~10~~ ~~11~~. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, to protect natural resources important ~~to~~ *for* preserving soils, watersheds, water quality, scenery, natural habitats, and air quality.

~~11~~ ~~12~~. In response to requests for rezoning land for more intensive use in designated growth areas, encourage applicants to proffer the placement of ~~land use~~ *permanent conservation* easements on important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat lands ~~that are not essential to the future economic viability of the project and are suitable for future development.~~

~~12~~ ~~13~~. Ensure that the natural and/or cultural features of properties held in recorded Conservation Easements and state designated scenic rivers are protected when reviewing land use ~~decisions~~ *applications*, ~~such as rezoning, special use, site plan, and subdivision requests~~ on adjacent properties.

~~13~~ ~~14~~. Support watershed management planning for each perennial stream and consider any watershed management plan as a factor in making land use decisions.

~~14~~ ~~15~~. Take all appropriate steps to protect public water sources, such as the Shenandoah River serving the Town of Berryville, and the Prospect Hill Spring serving the Town of Boyce and the communities of Millwood, Waterloo, and White Post.

~~15~~ ~~16~~. Support Shenandoah Basin regional water planning efforts including creation of surface water management areas, and programs to study and address low flow issues. Oppose efforts to establish new interbasin transfers within the Shenandoah River watershed.

~~16~~ 17.

~~18.~~ Utilize USGS Groundwater Study findings when evaluating proposed changes in land use and continue to support ongoing water resource monitoring efforts. Establish and maintain a long term water quality monitoring network and real-time water quantity monitoring network, in cooperation with the USGS, to track changes and better assess impacts to our water resources.

~~17~~ 19. Revise and implement the adopted County ordinance requiring pump out of septic systems per State requirements.

~~18~~ 20. Recognize that *because* karst terrane underlies the majority of *Clarke County the Shenandoah Valley*, ~~making~~ groundwater *in the County in these areas* is highly susceptible to contamination. ~~Steps should be taken~~ *Take steps* to protect groundwater and prevent contamination whenever possible.

~~21.~~ ~~Strengthen and develop site design features that protect the environment by minimizing new stormwater runoff and that provide the most effective measure of protection for onsite disposal of sewage. Factor in cost-effectiveness and ongoing maintenance requirements for current and future property owners.~~

~~19~~ 22. Adopt the most stringent regulations for alternative onsite sewage treatment systems permitted by State law to protect the County's vulnerable surface and groundwater resources. Implement an onsite treatment system monitoring program including enforcement of mandatory pump-out requirements for septic systems *as described in Policy #17 above*. For new development and re-development projects that require a land use change, ensure use of the onsite sewage treatment method that provides the maximum protection to surface/groundwater resources and Karst terrane.

20. *Promote multiple uses of forested land that are nonintensive and compatible, such as passive outdoor recreation, wildlife habitats, watershed protection, and forest management.*

21. *Ensure that timber harvesting is conducted in accordance with Virginia Department of Forestry and Chesapeake Bay protection standards. Also ensure that an approved forest management plan is in place for each site so that erosion and sedimentation of streams and other applicable impacts are minimized.*

22. *Promote the addition of forestal lands to the Clarke County Agricultural and Forestal District program by providing information on the program's benefits and incentives to owners of timber lands.*

Objective 4 – Historic Resources

~~Conserve~~ **Preserve** the County's historic character by ~~preserving~~ **protecting** its historical and cultural resources for the aesthetic, social, and educational benefits of present and future citizens through the following policies and the Historic Resources Plan.

Policies

1. Develop innovative ways to protect and promote the economic and cultural importance of historic and archaeological resources.
2. Encourage and assist property owners to pursue State and National Register designation, either individually or through thematic nominations.
3. Encourage and assist property owners to place voluntary ~~scenic~~ **conservation** easements on lands associated with historic buildings, sites, districts, and archaeological resources representing all historical time periods and cultures present in the County. ~~Particular focus should be given to those resources listed on the National Register of Historic Places and the County's Civil War resources.~~
4. ~~Investigate and define the scope of adaptive reuses for~~ **Encourage adaptive reuse of** historic structures and properties that ~~conforms to are compatible with~~ the County's **Comprehensive Plan** ~~land-use~~, regulations, and infrastructure **capacity goals**.
5. Establish and protect state and national historic districts, especially in rural areas, to recognize officially their historical significance and value.
6. Support the establishment of County historic overlay **zoning** districts to protect recognized properties and areas of historic and archaeological value and to ensure that new nonresidential development along access corridors leading to historic areas will be compatible and harmonious with such historic areas.
7. Ensure that proposed development in County historic overlay **zoning** districts is compatible with the historic, architectural, landscape, or archaeological attributes of nearby or adjoining properties, neighborhoods, and districts, and that archaeological resources on the development site are not disturbed. Encourage proposed development ~~elsewhere outside of these overlay districts~~ to be compatible with ~~and protect the scenic values of and ensure that it does not disturb~~ nearby historic resources or the scenic values of land associated with these resources.
8. Consider **potential impacts to** historic/archaeological resources ~~that have been surveyed and documented~~ when reviewing land-use decisions, such as rezoning, site plan, and subdivision requests.
9. Review and update the current "Clarke County Archaeological Assessment: Historical Character of the Lower Shenandoah Valley" and include more specific recommendations

to ensure protection of archaeological resources, ~~focusing on the sites of pre-historic indigenous peoples.~~

10. Promote community awareness and public education *of historic preservation including through use of a wide variety of media regarding* tax incentives, designation procedures, design guidelines, and appropriate rehabilitation guidelines. Support the creation of literature on the historic resources of the County to acquaint the general public, and in particular new residents, with the County's rich cultural heritage. These activities should have the objective of informing property owners and residents of the value that historic preservation adds to their properties and community.
11. Incorporate historic resources in comprehensive efforts to promote tourism in the County by aiding in the development of a promotional brochure, a local historic-plaque program, and self-guided tours.
12. Continue to map 18th- and 19th-century road traces and make the information available to the public.
13. Investigate solutions to address the issue of “demolition by neglect.” *Encourage property owners to protect their historic structures through including* public education initiatives, cooperative efforts, and regulatory tools provided by State law.
14. Continue to support the research and documentation of the history of Clarke County, including but not limited to *Native Americans and* African-Americans and their contribution to the history of the County.
15. Encourage owners of eligible properties to convey historic preservation easements as a tool for protecting these properties.

Objective 5 – Conservation Easements

Ensure the continued success of the Conservation Easement program by encouraging landowners to place County lands in voluntary permanent easement. Provide support and funding of the County’s Conservation Easement program and ~~collaboration~~ *collaborate* with other easement programs managed by State, Federal, and private entities.

1. Encourage and facilitate the donation of ~~open space and~~ conservation easements on land that meets the criteria of the U.S. Internal Revenue Service for easement donation and that is identified as having important scenic, historic, open-space, conservation, agricultural, or wildlife-habitat qualities. Such easements should also be consistent with the Comprehensive Plan and implementing component plans.
2. Encourage and expand support for the Conservation Easement Purchase Program, both philosophically and financially, in order to fund easement purchases on land with

significant conservation value that are owned by individuals with low to moderate income.

3. Encourage and support the goals of the Conservation Easement Program to protect and preserve:
 - a. Land essential to agriculture including land with soils classified *by the Natural Resources Conservation Service (NRCS) as prime farmland, farmland of statewide importance, farmland of local importance, and unique farmland as soils that are best suited to food, feed, fiber, forage, and oilseed crops* “Important Farmland” by the Natural Resource Conservation Service for the ~~continued production of crops and livestock.~~
 - b. Forested areas for their value as natural habitat and recreation, ability to enhance air and water quality, *and ability to* prevent soil erosion, ~~and as a source of renewable wood products.~~
 - c. Historic resources, to maintain community character and identity, and encourage the tourism industry.
 - d. All water resources with particular emphasis on land adjacent to the Shenandoah River and other perennial streams and the limestone ridge/groundwater recharge area to protect water quantity and quality (reference Map 3, Groundwater Recharge Area).
 - e. Land adjacent to the Appalachian Trail and other public lands.
 - f. Land with environmentally sensitive areas important to air and water quality, plant life, and wildlife.
 - g. Lands that provide viewsheds for the County’s gateways, main roads, and scenic byways.
 - ~~h. Lands that are not located in designated growth areas with the exception of those lands with scenic value, historic value, or environmental sensitivity.~~
4. Continue to support efforts pertaining to public education and outreach to expand the understanding and benefits of conservation easements.
5. Continue to support efforts to secure grant funding to purchase new easements and to promote stewardship of existing easements.
6. Support efforts by County staff to monitor and, where necessary, enforce County conservation easement agreements with landowners.

Objective 6 – Outdoor *Recreational* Resources

Promote and protect the County’s outdoor *recreational* resources to ensure ongoing, diverse active and passive recreational opportunities for residents and visitors to the County.

1. ~~Develop a~~ *Maintain the* Recreation Plan as ~~a new~~ *an* implementing component plan containing specific strategies pertaining to the County’s Parks and Recreation program. Support and protect the County’s local, state, Federal, and other publicly-accessible active and passive outdoor recreational resources.
2. Provide ~~an array~~ *a variety* of recreational opportunities for citizens throughout Clarke County that *are fiscally responsible, compatible with the County’s land use philosophy, and* meet the changing needs of the community ~~and foster development of mutually beneficial partnerships~~. *Seek opportunities to partner with other jurisdictions, agencies, and the private sector to fund, develop, and expand recreational resources.*
3. Promote the concept of linear greenways to link natural features, wildlife corridors, *and* cultural and scenic resources, such as:
 - *Designated scenic rivers*
 - *Designated scenic highways*
 - *Registered historic properties*
 - *Permanent conservation open-space* easements
 - *Recreation facilities*
 - Blandy Experimental Farm
 - Shenandoah University’s Shenandoah River Campus, ~~and the~~
 - Appalachian Trail
4. Study and implement strategies to manage the current and future recreational use of the Shenandoah River corridor.

Objective 7 – Energy Conservation and Sustainability

Encourage sustainable development by promoting renewable energy, energy conservation, and preservation of natural resources within the context of the County’s land use philosophy. *Ensure* ~~so~~ that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

Policies

1. Promote energy efficiency to the maximum extent economically feasible when making decisions affecting County operations. *Adopt economically feasible measures to reduce resource use including maximizing energy use efficiency, and when purchasing, recycling, and disposing of products. Conduct regularly scheduled audits of County facilities to ensure energy efficiency.*

2. Encourage the use of active and passive renewable energy systems. *Develop and consider developing* policies that address potential impact of such systems on scenic viewsheds, *agricultural and natural resources*, and historic resources (e.g., windmills and solar panels).
3. Encourage reusing and recycling materials, including a recycling program. Facilitate access to public recycling facilities.
4. Encourage a regional reduction in single occupant vehicles (SOVs) through mechanisms such as ridesharing, public transit, carpools, and bicycle/pedestrian accommodations. Identify locations for commuter and ridesharing lots to serve Clarke County residents and explore fee systems to recoup costs from non-County users.
5. Adopt economically feasible measures to maximize energy efficiency in the siting and design of new and refurbished public buildings, schools, and other public facilities. Establish policies that require new or renovated public buildings to be designed to meet a nationally recognized energy and environmental standard such as Leadership in Energy and Environmental Design (LEED) or Earthcraft.
- ~~6. Adopt economically feasible measures to reduce resource use, including maximizing energy use efficiency, when purchasing, recycling, and disposing of products.~~
- ~~7. Conduct regularly scheduled audits of County facilities to ensure energy efficiency.~~
- 6 8.** Encourage use of Low Impact Development (LID) techniques that help manage stormwater in an environmentally sensitive manner.
- 7 9.** Establish water quality performance standards that include retention of vegetation, minimal site disturbance, and reduction of nutrients and sediment in post-development stormwater.
- 8 10.** Coordinate with the Town of Berryville, the Town of Boyce, and the Clarke County School District on joint sustainable community practices such as energy efficiency and alternative transportation.
- 9 11.** Encourage the use of cisterns and other water reuse applications in new residential and commercial developments.
- 10 12.** ~~Consider adopting~~ *Maintain and periodically update* the Energy and Resource Management Plan (dated 4/20/2010) ~~or modified version of this Plan as a new implementing component plan.~~ Investigate tax credit programs that encourage energy conservation by residents and businesses.

Objective 8 – Village Plans (Millwood, Pine Grove, White Post)

Enhance the identity and appearance of established villages, such as Millwood, Pine Grove, and White Post.

Policies

1. Develop a new Village Plan as an implementing component plan that provides planning and economic development strategies for the designated villages.
2. Protect private and public water sources serving these areas.
3. Protect the cultural and economic identity of these communities.
4. Encourage the preservation, renovation, and restoration of existing structures.
5. Encourage economic development and revitalization of these communities through innovative uses of new and existing structures.
6. Encourage upgrading of existing substandard housing in these communities.
7. Promote projects that **preserve build-upon** or enhance the historic characteristics of each village **including but not limited to walkability, compact development, and design elements**.

Objective 9 – Designated Growth Areas for Development

Encourage business and residential development in designated growth areas to implement the principles of:

- **P**reserving open space, farmland, natural beauty, cultural features, and critical environmental areas, and
- **I**mproving the quality of life and services in existing towns and directing development towards these existing towns.

Provide for nonresidential business development at the intersections of two or more federally-designated primary highways (U.S. Routes 50/17 and 340 and U.S. Routes 340 and 522) through the following policies, the Berryville Area Plan, the Waterloo Area Plan, and the Double Tollgate Area Plan.

Policies

1. Continue to designate the Town of Berryville and certain areas adjacent to the Town as the Berryville **Growth Annexation** Area. The Berryville Area Plan defines the boundaries and uses for this growth area. The boundaries of the adopted Berryville Area Plan should not be expanded until the land area addressed by the Plan is substantially

developed.

- a. Direct urban and suburban uses that require water and sewer service, including residential, commercial, and light industrial development, to this growth area where they can be served conveniently and economically by available public facilities and services. These uses include schools, parks, water and sanitary sewer, storm-water drainage, roads, police, fire, and emergency services.
- b. In this growth area, ~~provide for~~ **encourage** the construction, rehabilitation, and maintenance of affordable housing, meeting the needs of current and future households with incomes at or below the County median as planned for in the Berryville Area Plan and Town of Berryville Comprehensive Plan.

2. ~~Apply the following land use and design principles to development in the Berryville Growth Area.~~

- ~~a. Provide for a mixture of complementary land uses and consider innovative techniques such as form-based codes that create walkable, pedestrian-friendly street networks and greater flexibility of uses.~~
- ~~b. Create a range of housing opportunities and choices, including an appropriate level of affordable housing.~~
- ~~c. Create walkable neighborhoods.~~
- ~~d. Encourage a variety of transportation choices.~~
- ~~e. Promote compact, efficient land use and building design that maximizes green space and minimizes road and utility costs.~~
- ~~f. Foster distinctive and attractive neighborhoods with a strong sense of place.~~
- ~~g. Include recreation areas in new developments that are provided by the developer, maintained by the developer or homeowners' association, and are designed to meet all county standards and safety regulations.~~

Work in concert with the Town of Berryville to ensure the Berryville Area Plan and applicable regulations produce development that reflects the shared vision of the Town and County.

3. Continue to coordinate and cooperate with the Towns of Berryville and Boyce to implement effective policies to provide for residential and business development compatible with the established character of these towns as reflected in their comprehensive plans.
4. Promote business activities at Waterloo (U.S. Routes 50/17 and 340) through provision of public water and sewer services and provision of areas zoned for business uses. ~~An area plan should be maintained~~ ***Maintain the Waterloo Area Plan*** to identify:
 - a. The specific boundaries and mixes of uses,
 - b. The way public services are to be provided, and

- c. The way proposed activities will be integrated with surrounding uses, especially agricultural, residential, and parcels held in permanent conservation easement. The boundary of the adopted Waterloo Area Plan should not be expanded until the land area addressed by the Plan is substantially developed, and the Plan should be periodically reviewed and updated.
5. *Evaluate the Double Tollgate Business Intersection Area at U.S. Routes 340 and 522 (as designated in the Double Tollgate Business Intersection Area Plan) for potential County investment in infrastructure to support existing business growth and new business development. County infrastructure investment should be subject to the following strategies:*
- a. *Development of public water and public sewer should be in partnership with property owners, local governments, and applicable State agencies which may require public infrastructure to serve the adjacent State-owned property formerly known as Camp 7.*
 - b. *The County, in partnership with applicable stakeholders, should explore all possible approaches to serve the Business Intersection Area with public water and public sewer before giving any consideration to extending the existing County utility systems.*
 - c. *Property owners who develop their properties in this business intersection area shall be solely responsible for the cost and construction of public road improvements required as a result of their development. The County may consider partnerships to pursue funding for construction of necessary intersection-wide improvements.*
 - d. *The County should help facilitate business-class broadband availability in this development area using the applicable policies of Objective 13, Broadband Internet Access.*
6. *The Double Tollgate Area Plan should be maintained and periodically updated to identify the specific boundaries and mixes of uses; the way public services are to be provided as described in Policy #5 above; and the way proposed activities will be integrated with surrounding uses, especially agricultural uses, residential uses, and lots held in permanent conservation easement. The Area Plan should also address:*
- *The relationship between and potential development integration of the current Business Intersection Area and adjoining properties owned by the Commonwealth of Virginia (formerly known as the Camp 7 property).*

- *Creation of zoning requirements, design criteria, or other regulations to address the unique characteristics of this designated development area.*
- *Potential future expansion of the Business Intersection Area to accommodate future commercial growth and economic development subject to the County's capacity to serve with public infrastructure.*

~~5. Designate the Double Tollgate area (U.S. Routes 340 and 522) as a deferred growth area and delay county investment in infrastructure until such time as it is applicable and economically feasible. Feasibility should be triggered through evaluation of factors such as the quantity and long-term stability of growth in the immediate area, the availability of public water and public sewer capacity, and compliance with any adequate public facility measures that are developed. Once it is feasible to do so, promote business activities at Double Tollgate through provision of public water and sewer services and provision of additional areas zoned for business uses.~~

~~The Double Tollgate Area plan should be maintained to identify:~~

- ~~a. The specific boundaries and mixes of uses,~~
- ~~b. The way public services are to be provided, and~~
- ~~c. The way proposed activities will be integrated with surrounding uses, especially agricultural, residential, and parcels held in permanent conservation easement. The boundary of the adopted Double Tollgate Area Plan should not be expanded until the land area addressed by the Plan is substantially developed, and the Plan should be periodically reviewed and updated.~~

- 7 6. Ensure that land-use decisions do not allow urban and suburban forms of development to occur in designated growth areas unless public facilities and services commensurate with such development either are available or are programmed with a plan for cost recovery. *Cost recovery including includes* but *is* not limited to direct contribution by the development community or increased tax revenue generated by the new development.
- 8 7. Encourage the use of best management practices as outlined in the Chesapeake Bay Regulations and as determined by federal TMDL program to improve water quality and minimize runoff impacts that could be caused by development of the Berryville *Growth Annexation* Area and at primary highway intersections.
- 9 8. Consider developing levels of service for public facilities including public water, public sewer, roads, schools, and parks to ensure that the County is capable of providing adequate services to support existing and new development.

- 10 9.** Consider the planning goals, principles, and policies of incorporated towns in designating growth areas. Make provisions for public utility services, and, where feasible, undertake joint or coordinated action with town governments, independent county authorities, and other regional entities.

Objective 10 – Economic Development

Encourage economic growth that is compatible with the County's environmental quality, rural character, and residential neighborhoods, and that provides a healthy balance between revenues from residential and agricultural uses, and those from commercial and industrial uses.

Policies

1. Establish and maintain an Economic Development Strategic Plan ~~as a component plan to implement this Objective and its policies~~ ***as an action-oriented plan to implement the recommended strategies of this Objective 10. Ensure that the Strategic Plan's recommendations and action items are fully consistent with Objective 10 and all other applicable goals and objectives of the Comprehensive Plan.***
2. Direct the location of compatible businesses to designated growth areas and existing commercial centers as allowed by the adopted plans for those areas.
3. Encourage new or expanded businesses that have minimal impact on the County's sensitive environment and that do not adversely impact surrounding properties with excessive noise, odor, or light pollution.
4. Ordinances and policies should be implemented to ensure high-quality design and construction of new and redeveloped businesses. ~~This shall include context sensitive landscaping that makes use of native plants, xeriscaping, and use of gray water for irrigation where possible. Maintenance of landscaping and site plan features should be enforced by the County throughout the lifespan of the business.~~
5. ***Promote economic development within incorporated towns and designated business intersections that is consistent with the County's land use philosophy and character. Focus on types of businesses that can be served with public infrastructure (e.g., roads, public water, public sewer, natural gas, broadband) in an effective and fiscally-responsible manner and with minimal adverse impact to surrounding properties.***
5. ~~Promote types of economic development that are consistent with the County's existing uses and character, including but not limited to the following:~~
 - a. ~~Tourism and the land uses that would benefit from it.~~
 - b. ~~Agricultural businesses.~~
 - c. ~~Agriculturally related businesses.~~
 - d. ~~Equine businesses and related services.~~
 - e. ~~Compatible light industrial uses in designated locations.~~

6. *Promote economic development in the County's unincorporated and rural areas that is highly compatible with the County's land use philosophy and character. Focus on types of businesses that will not produce impacts which may result in significant degradation of natural resources, that will not require or increase demand for public infrastructure improvements or expansion, and that will not adversely impact existing nearby land uses or the conservation value of protected lands. These business sectors include but are not limited to agricultural operations, agricultural support businesses, and equine businesses and related services.*

Other business sectors which may be compatible on a limited scale subject to compliance with building code regulations, onsite sewage disposal system requirements, and County zoning regulations include:

- a. *Small-scale lodging within single-family dwellings and/or accessory dwellings.*
 - b. *Limited special events and commercial public assembly uses subject to full compliance with County regulations governing such activities.*
 - c. *Support businesses for existing tourism resources.*
 - d. *Adaptive reuse of existing commercial and residential structures to compatible new uses.*
- 7 6. Protect and enhance the environmental resources of the County, recognizing that they can serve as an attraction to business and industry.
 - 8 7. Encourage the attraction of business activities that complement or that work in conjunction with existing industrial and commercial activities in the County, particularly active farming and forestry operations.
 - 9 8. Ensure that new commercial development occurs according to the following provisions:
 - a. *Does not degrade the level of service of the existing transportation network to unacceptable levels for safety, congestion, and functionality.*
 - b. Ensures that access to and impacts on the transportation network are safe ~~and do not degrade efficiency~~ *and do not impede traffic flow for emergency vehicles.*
 - c. Meets all applicable zoning and building code regulations and all standards for water, sewage disposal, and waste disposal needs.
 - a. ~~Does not impede traffic flow on roads and/or overload intersections.~~
 - b. ~~Prevents strip development by integrating new development with existing development through the use of reverse frontage, consolidated or shared access~~

~~points, shared parking and/or drive aisles, internal circulation networks, and interparcel access; and ensures that land use ordinances provide flexibility to facilitate clustered development patterns.~~

- ~~d. — Does not have a negative impact on adjacent property values.~~
- 10 9.** Evaluation of *rezoning, conditional zoning, and special use permit applications for* adaptive reuse projects; and projects to redevelop existing agricultural, commercial, and light industrial uses shall include the following elements in addition to the criteria set forth in Policy **#9** above for new development projects:
- a. Whether the project is in general accord with the Comprehensive Plan.
 - ~~b f.~~ **Whether there is** consistency with prior land use decisions involving similar cases.
 - ~~c b.~~ Whether the resultant structures, parking, lighting, landscaping, stormwater management, onsite well and septic systems, property ingress/egress, and other site elements would be in full compliance with County land use ordinances and State regulations.
 - ~~d e.~~ **Whether** ~~The degree to which~~ the project mitigates an existing public safety concern.
 - ~~e d.~~ **Whether** ~~The degree to which~~ the project mitigates any new impact to the existing character of the area including but not limited to noise, odor, intensity, or aesthetics.
 - ~~f e.~~ In the case of a conditional ~~rezoning~~ application, **whether** ~~the degree to which~~ the applicant's proffer package addresses all existing and potential site impacts to surrounding properties.
- 11 10.** Support a vigorous agricultural development program in the County that emphasizes promotion of Clarke County agricultural products, encourages cooperation with individual agricultural interests within the County and advocacy agencies, and establishes liaisons with counties in the area that have similar development programs.
- 12 11.** Seek and consider additional fiscal tools by which the County may enhance its tax base.
- 13 12.** Promote the retention, attraction, and expansion of businesses and industries that support the land use goals of the County, in particular, businesses that generate a relatively high level of local tax revenue in relation to the number of jobs, create minimal impact on public services, and are compatible with the County's agricultural and natural resources.
- 14.** *Facilitate business-class broadband availability using the applicable policies of Objective 13, Broadband Internet Access.*

Objective 11 – *Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility*

Ensure the provision of capital improvements in a manner consistent with the land-use objectives of the County through the following policies and the Capital Improvement Program.

1. ***Maintain*** ~~Develop~~ an annual Capital Improvement Planning process that evaluates the need for capital projects via established performance triggers and degree of conformance of each project with the Comprehensive Plan and implementing component plans. Also develop a means of consistent, objective, and accurate fiscal impact analysis for use in evaluating capital projects.
2. Encourage the development of level of service criteria, needs assessments, and other performance triggers to plan for capital improvements in advance of the actual need. Ensure that assessments and criteria are based on standards that are accepted by the relevant industry and that they are evaluated and updated on a regular basis by the managing department.
3. Prohibit the extension of capital improvements into areas not designated for growth in the Comprehensive Plan that would be subjected to increased development pressures by such extensions. Such improvements would include public water, public sewer, schools, ***and*** public facilities but would not include passive recreational resources and high-speed internet facilities.
4. Carefully assess the short- and long-range fiscal impacts of necessary capital improvements, such as roads, schools, and water and sewer service when land-use decisions and plans are made.
5. Provide funding for school facilities that will enable the School Board to achieve its priorities within the County's fiscal capabilities. Ensure that the School Board's goals and needs and the County's ability to fund projects are compatible and are discussed jointly on a regular basis.
6. Ensure that the County's facilities are located, designed, and constructed to maximize public convenience and accessibility. New construction should, where economically feasible, maximize use of existing facilities. Available technology should be reviewed and, where possible, technological improvements should be used to minimize the need for additional space.
7. Ensure that sheriff, fire, rescue, and emergency management provide the highest level of citizen protection within the fiscal resources of the County. Work with these agencies and departments to ensure that performance measures are established to effectively plan for future capital, personnel, and equipment needs.

8. Provide or permit Waterworks and Sewerage System & Treatment Works *as regulated by the Clarke County Zoning Ordinance* only as described in the following policies, to ensure consistency with the previously stated land-use policies.
 - a. Coordinate with the Towns of Berryville and Boyce in their activities to provide Waterworks and/or Sewerage System & Treatment Works on land within Town limits and areas that the County agrees should be annexed to the Towns.
 - b. Provide septage treatment facilities to meet the County's water resource and environmental protection objectives.
 - c. Work with State and Federal agencies and property owners to remedy incidents where a significant health threat has been identified by the Clarke County Health Department involving existing residential development. Any applicable grant or low-interest loan program should be pursued to assist in paying for the construction of such facilities.
 - d. Provide Waterworks and/or Sewerage System & Treatment Works, through the Clarke County Sanitary Authority, *in partnership with property owners at property owner expense*, for business uses at the intersection of two or more federally designated primary highways and/or state designated limited access primary highways, specifically the Waterloo Area (US Routes 50/17 and 340). Any applicable grant or low-interest loan program should be pursued to assist in paying for the construction of Sanitary Authority facilities.
9. Permit, in cooperation with the Clarke County Sanitary Authority, the construction of sewage treatment facilities, in accord with the aforementioned policies. These facilities should be financed by the fees charged to the users of the facilities, State and Federal grant programs, or other innovative and incentivized financing programs that produce a net benefit to the County. Facilities should use innovative, cost-effective technology consistent with environmental protection policies, such as water recycling/land application systems.
10. Evaluate all private development proposals as they relate to public utility and land-use plans.
11. Improve coordination among County departments in standardizing methods of financial calculation and projection.

Objective 12 -- Transportation

Ensure that the County's transportation system provides safe and efficient means for all modes of travel for citizens and visitors through coordinated land use decision-making and judicious use of limited fiscal resources.

1. ~~Create and~~ Maintain a transportation plan that includes an inventory of the County's existing transportation network, planning assumptions, needs assessment, and recommended future improvements. ~~Conduct an annual review of this plan to ensure consistency with the County's Six Year Secondary Road Improvement Plan and Budget and with the Commonwealth Transportation Board's Statewide Transportation Plan.~~
2. Develop specific strategies for prioritizing transportation projects, responding to new State and Federal projects in the County, and identifying new projects to improve safety or increase capacity of the public road system. Include policies on bicycle and pedestrian facilities and commuter facilities.
3. Maintain the existing primary road system at its present level and upgrade it only for safety purposes or planned traffic increases to the extent funds are provided by the Virginia Department of Transportation.
4. Establish specific transportation planning policies in the area plans for the County's designated growth areas including but not limited to policies on walkability, bicycle and pedestrian mobility, interconnected street networks, traffic calming, and other modern techniques that support high quality communities and neighborhoods.
5. Carefully assess the short- and long-range fiscal impacts of transportation improvements when land-use decisions and plans are made.
6. ~~Develop~~ *Continue to* maintain a County bicycle and pedestrian plan.

Objective 13 – Broadband Internet Access

Facilitate the development and expansion of broadband internet access options with sufficient speed and capacity to serve the needs of County residents and businesses. Recognize that reliable and cost-effective broadband internet will continue to be critical not just for communications and entertainment but also for applications such as distance learning, teleworking, telemedicine, and home and business automation.

1. *Pursue partnerships with private sector companies, public utilities, and other entities that provide broadband internet service or infrastructure.*
2. *Explore all possible funding opportunities and methods to generate revenue for broadband expansion.*

3. *Maintain a County broadband committee to coordinate the County’s efforts, to promote awareness of broadband options and availability, and to stay up-to-date on current technologies and innovations.*
4. *Consider participation in pilot projects or “beta-testing” opportunities to determine whether new technologies may improve the County’s broadband options.*
5. *Ensure that County regulations facilitate compatible and effective expansion of both wired and wireless broadband infrastructure.*

Objective 13—Citizen Participation in the Planning Process

Encourage citizen involvement in the planning process.

Policies

- ~~1. Provide opportunity for citizens to participate in all phases of the planning process.~~
- ~~2. Require that all meetings involving preparing, revising, or amending the Comprehensive Plan be publicly posted and open to the public.~~
- ~~3. Meet or exceed all state requirements for public notice for meetings and freedom of information requests.~~
- ~~4. Ensure that information pertaining to the Plan and the planning process is available to citizens in an understandable form, which may include internet postings, newsletters, mailings, informational brochures, and announcements in newspapers and on radio to stimulate citizen involvement.~~
- ~~5. Encourage educational institutions, agencies, clubs, and special interest groups to review and comment on the Comprehensive Plan and implementing components.~~
- ~~6. Ensure uniform interpretation, administration, enforcement procedures, and staffing levels for the implementing plans, policies, and ordinances of the Comprehensive Plan.~~

CHAPTER III

Implementing Components

OVERVIEW

The Clarke County Comprehensive Plan utilizes a base plan structure with several implementing component plans. This document, the “base plan,” contains goals, objectives, and policies that provide general guidance on land use decision-making. The “implementing component plans” are topic-specific plans that contain more detailed factual information than the base plan provides and strategies on designated growth areas, industry sectors, and County resources.

Each component plan is considered to be part of the Comprehensive Plan.

Each component plan is developed, vetted, and adopted through the same public process required for the Comprehensive Plan, and *each* is reviewed and updated periodically to account for new challenges and impacts associated with growth and regulation. Component plans are standalone documents that can be obtained from the County Planning Department or the Clarke County website.

Below is a list of the current implementing component plans ~~and new plans proposed for future development:~~

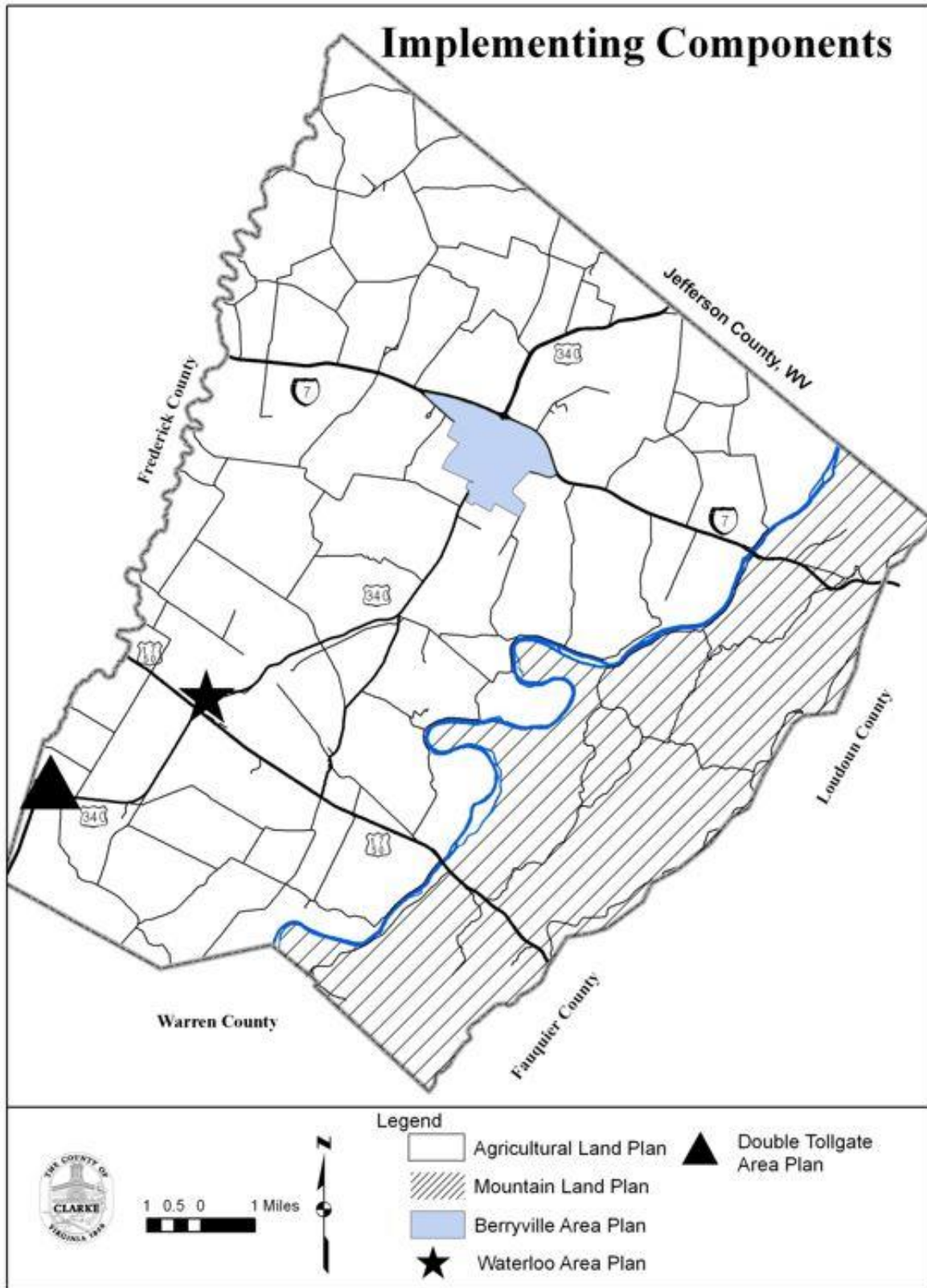
1. Agricultural Land Plan
2. Mountain Land Plan
3. Berryville Area Plan
4. Waterloo Area Plan
5. Double Tollgate Area Plan
- ~~• Business Intersections Plans (Waterloo and Double Tollgate)~~
6. Water Resources Plan
7. Historic Resources Plan
- ~~• Capital Improvement Plan~~
8. Transportation Plan
- ~~• Economic Development Strategic Plan —NEW~~
9. Recreation Plan —NEW
- ~~• Village Plan —NEW~~

One new component plan, the Village Plan, is recommended to be created to provide guidance and recommendations for the future development of the County’s three unincorporated villages (Millwood, Pine Grove, and White Post).

Two component plans that are not on the above list but were implementing components of the 2013 Comprehensive Plan are the Capital Improvement Plan and Economic Development Strategic Plan. The component plan status of these two plans was removed with the adoption of the 2022 revision to the Comprehensive Plan. A discussion of this change is included in the “Other Relevant Plans and Studies” section of this Chapter.

~~The 2007 Plan includes a Transportation Plan as a standalone implementing component plan. Based on the recommendations of the current Comprehensive Plan, the Transportation Plan will now be maintained as a separate companion document to the Comprehensive Plan. This will enable the Transportation Plan to be updated on a more frequent basis to reflect current projects and traffic data. Objectives and policies pertaining to transportation issues remain in Chapter II.~~

MAP 10 – IMPLEMENTING COMPONENTS



REVIEW AND UPDATE OF COMPONENT PLANS

Because component plans are part of the County’s Comprehensive Plan, each is required to be reviewed at least once every five years to determine whether the plan needs to be updated or modified. The Comprehensive Plan’s guidance is used to inform the development of each component plan and it is important to ensure all goals, objectives, and policies/strategies are consistent among the Comprehensive Plan and component plans. Given the number of component plans that have to be evaluated once every five years, the following guidelines are recommended for reviewing and updating component plans:

- 1. Component plans should not be updated while a Comprehensive Plan review is in progress. This is to ensure that the component plan update process is informed using guidance from a current and updated Comprehensive Plan.*
- 2. When appropriate, component plan reviews should be grouped or conducted at the same time to take advantage of deliberating common or similar issues. This will help to ensure that updated component plans are consistent with one another.*
- 3. Where applicable, component plan recommendations should cross-reference the goals, objectives, or policies from the Comprehensive Plan that are used to inform the recommendations.*
- 4. For scoping purposes, five-year review resolutions that are adopted by the Planning Commission to initiate review of a component plan should include an initial list of issues and concerns to be addressed.*

CURRENT IMPLEMENTING COMPONENT PLANS

1. Agricultural Land Plan

<u><i>Adoption Date of Current Version:</i></u> <i>February 21, 2017</i>	<u><i>Status of Five-Year Review Resolution:</i></u> <i>Resolution adopted on February 4, 2022</i>
<p><i>Corresponding Comprehensive Plan Objectives:</i></p> <ul style="list-style-type: none"> <i>• Objective 1 – Agriculture</i> <i>• Objective 3 – Natural Resources</i> <i>• Objective 5 – Conservation Easements</i> <i>• Objective 6 – Outdoor Resources</i> <i>• Objective 10 – Economic Development</i> <i>• Objective 13 – Broadband Internet Access</i> 	

The Board of Supervisors adopted the Agricultural Land Plan in September 1997. The Federal Agricultural Census occurred in 2012 with data available in early 2014. An update of the Agricultural Land Plan should be planned for Spring 2014 based on this most recent information.

Summary:

The Agricultural Land Plan was first developed in 1987 to outline the County's symbiotic relationship with its agricultural industry including approaches to supporting and promoting agriculture, and guidance for land use planning and development of regulatory tools to preserve farmland.

In 2016, the Agricultural Land Plan underwent an extensive cover-to-cover rewrite of the previous version that was adopted in 1997. The 1997 Plan contained detailed statistical information about the agricultural industry in Clarke County but did not include recommended goals, objectives, and strategies. The 2016 Plan added goals, objectives, and strategies that focus on providing support to agricultural businesses and protecting them with appropriate land use and regulatory policies.

Clarke County, using powers delegated to it by the Virginia General Assembly, has developed a sophisticated and comprehensive set of policies and associated methods of implementation for protecting its highly valued farmland. In addition, the County has either completed or retained consultants to assemble the background studies needed to undergird its strategies.

The major components of this state/county farmland protection program are listed below:

1. ~~Land Use Taxation.~~
2. ~~Virginia Estate Tax.~~
3. ~~State right to farm protection against private nuisance lawsuits.~~
4. ~~Agricultural and Forestal districts authorized by state law.~~
5. ~~Conservation Easement Purchase Program managed by the Clarke County Conservation Easement Authority.~~
6. ~~Other easement programs operated by the Department of Historic Resources, Virginia Outdoors Foundation, and private organizations such as the Piedmont Environmental Council and Potomac Appalachian Trail Conference.~~
7. ~~Sliding scale zoning system to aid in the preservation of large tracts of land.~~
8. ~~The three committees that participate in various ways in efforts to maintain a strong agricultural economy:~~
 - a. ~~The Agricultural and Forestal District Committee that advises the Board of Supervisors on matters affecting the Clarke County Agricultural and Forestal District created through the Code of Virginia;~~
 - b. ~~County's Economic Development Advisory Committee (EDAC) that provides guidance on economic development matters including agribusiness and agritourism.~~
 - c. ~~The Clarke County Farm Bureau's Economic Development Committee.~~
9. ~~Provision in the Comprehensive Plan for protecting agricultural and mountain lands, on the one hand, and coordinating the control of urban development and the provision of infrastructure, on the other. The intent of such policies is to concentrate new growth in the Towns of Berryville and Boyce and at primary highway intersections. Few jurisdictions in the country can match these accomplishments.~~

Current Component Plan Goals:

The Goals of the 2016 Agricultural Land Plan are as follows:

- 1. Actively support the practice of agriculture and the preservation of agricultural land.*
- 2. Promote agricultural industry and business.*
- 3. Establish land use and regulatory policies to support the agricultural sector and preserve agricultural land.*

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that, in addition to the policy guidance in the aforementioned Comprehensive Plan objectives, two specific issues should be considered.

The first issue is the potential merger of the Agricultural Land Plan and Mountain Land Plan to create a combined component plan for the County's rural, unincorporated areas. The Mountain Land Plan's current objectives are also relevant to issues impacting the County's agricultural areas west of the Shenandoah River. Combining these two plans would allow these issues to be evaluated on both a County-wide basis and on how they impact agricultural areas uniquely. The combined review can also assist in developing new objectives and strategies for land use decision-making in agricultural areas.

This leads into the second issue – determining the form and scale of compatible agribusiness and agritourism uses and activities. Since the 2013 Comprehensive Plan and the 2016 Agricultural Land Plan were adopted, agricultural businesses regionally have expanded and taken on new forms with new impacts. New Code of Virginia regulations have been adopted to limit local regulation of agritourism activities, resulting in proliferation of businesses that attract visitors to a farm or agricultural operation for retail sales or education and entertainment purposes. Similar uses have also been proposed for public assembly activities such as weddings and other special events to take advantage of the scenic beauty in the County's rural and agricultural areas. Additionally, operators of a large-scale hydroponic farming operation considered locating in the County which could have brought potential adverse impacts to roads, groundwater supplies, the night sky, and the County's scenic beauty.

Revisions to both the Agricultural Land Plan and the Mountain Land Plan should include an evaluation of and recommendations for determining the compatible size, scope, intensity, and appearance of these and other similar non-traditional agricultural operations which may locate in the County in the future.

2. ——— Priorities for the Next Few Years

The 1997 Agricultural Land Plan concentrates on two major themes: (1) the necessity of taking steps to strengthen Clarke County's agricultural sector to ensure that farmers can continue to operate profitably, and (2) developments in the law that affect the capacity of the County to protect its farmland resource. In conjunction with the scheduled update of the Plan, these major themes will be evaluated for relevance and expanded or modified as needed. Current trends in

~~agriculture such as alternative farming techniques, agribusiness, and agritourism will be considered for inclusion in the Plan.~~

~~As a general matter, the protection of the County's farmland resources requires that new development be channeled away from prime farm areas and into those parts of the County that are more suitable for urban development and are well served by necessary infrastructure. In short, it is necessary to manage urban growth thoughtfully and effectively to protect natural and agricultural resources. The County should continue to articulate forcefully its policies for concentrating development in the Towns and designated growth areas.~~

~~Over the years, the County has adopted several regulations pertaining to subdivision design, especially in the AOC and FOC districts, so that they are well laid out and their impact on the natural environment is minimized. The County should continue to periodically review its zoning and subdivision regulations and procedures to ensure that they contain policies and criteria that produce better designed developments, while minimizing their negative impacts on surrounding areas.~~

~~**3. Major Policies**~~

- ~~1. Encourage and expand the activities of County committees that study and make recommendations on issues affecting agriculture.~~
- ~~2. Include the promotion of agriculture and related businesses in the responsibilities of the County's Economic Development program.~~
- ~~3. Retain the land use taxation program.~~
- ~~4. Continue to support the County's Conservation Easement Purchase program as a means of preserving prime farmland and reducing the potential impact of development on existing farms.~~
- ~~5. Require an agricultural disclaimer in agreements of sale for land in the AOC District;~~
- ~~6. Continue to adopt site design requirements for subdivisions in the AOC and FOC Districts; and~~
- ~~7. Promote agriculture related businesses in AOC, such as pick your own operations, farm stands, agritourism elements, and other ways of increasing farmers' agricultural income.~~

2. **Mountain Land Plan**

<u>Adoption Date of Current Version:</u> <i>June 21, 2005</i>	<u>Status of Five-Year Review Resolution:</u> <i>Overdue</i>
<i>Corresponding Comprehensive Plan Objectives:</i> <ul style="list-style-type: none">• <i>Objective 2 – Mountain Resources</i>• <i>Objective 3 – Natural Resources</i>• <i>Objective 5 – Conservation Easements</i>• <i>Objective 6 – Outdoor Resources</i>• <i>Objective 10 – Economic Development</i>• <i>Objective 13 – Broadband Internet Access</i>	

The Mountain Land Plan was created in order to develop customized land use strategies to address the unique characteristics of the Mountain Land Area. The County Board of Supervisors adopted the original Mountain Land Plan in August 1994. The Board adopted an updated Plan in 2005.

Summary:

The Mountain Land Plan was first adopted in 1994 to describe the mountain environment located east of the Shenandoah River, to identify character elements that are important to the County’s residents and stakeholders, and to outline a plan for future development patterns. The Plan was later revised in 2005 as most flat and easily accessible land in this area had been developed and parcels with more difficult access and terrain challenges were now being developed. The 2005 Plan contained numerous recommendations for the adoption of text amendments to various ordinances in an effort to address these development impacts. Recommendations addressed the following subject areas:

- *Minimum lot size and required open space provision with subdivisions*
- *Subdivision design requirements including location of utilities, construction of private access easements, and location of propane tanks*
- *Allocation of dwelling unit rights in boundary line adjustment transactions*
- *Vegetative buffer and clearing limit requirements*
- *Clearing limits for agricultural uses*
- *Protection for slippage soils and strengthening of erosion and sediment control regulations*
- *Stronger regulation of forestry management activities*

Since 2005, the Plan's recommended text amendments have all been addressed and most have been incorporated into applicable ordinances. Therefore, the 2005 Plan can be considered fully implemented.

1. Summary

The following are key excerpts from the Purpose Statement of the 2005 Mountain Land Plan.

The need for a Mountain Land Plan became apparent as people in the community recognized the importance of the mountain to Clarke County as a natural resource, a timber resource, and an environmentally important resource with regard to increases in residential development. The first Mountain Land Plan was adopted in August 1994. The need for an updated Mountain Land Plan has become apparent. Most flat and easily accessible land has been developed. Development is now occurring in mountain areas with increasingly difficult access and terrain challenges that are not adequately addressed in the current Mountain Land Plan.

As an implementing component of the Clarke County Comprehensive Plan, the Mountain Land Plan seeks to describe the mountain environment, to identify the elements that are important to the people of the County with regard to the mountain character, and to outline a plan for future development patterns.

In summary, the updated Mountain Land Plan recommends increasing the minimum lot size, requiring large residual tracts (to encourage the grouping of new lots in a manner that protects the mountain's character), and providing for continued forestry. The standards for private roads are adjusted to improve their safety and limit their impact on the natural terrain. The Plan proposes improved protection of surface and ground water resources. Clearing standards are addressed with regard to slope, property lines, and viewshed. Recommendations are made to protect extreme slopes and areas of slippage soils from development, to the maximum extent possible. Forestry issues are addressed as well as cultural and historic resource issues.

3. Major Policies

The following objectives were developed to guide public land use policy in the Mountain Land Area based on the above development pressures and on the unique, irreplaceable, and environmentally sensitive character of the Mountain Land Area.

Current Component Plan Objectives:

The objectives listed in the 2005 Mountain Land Plan are as follows:

1. Protect the forest resources of the area
2. Protect surface water quality of the area
3. Protect availability and quality of groundwater in the area
4. Protect wildlife habitats and ecosystems (including natural heritage areas)
5. Protect the scenic values and scenic byways of the area

6. Protect cultural resources (such as the Appalachian National Trail / historic structures/sites)
7. Ensure safe public and private roads
8. Protect private property rights
9. Provide for well-sited development compatible with the first eight objectives

~~All of these objectives are important, but no single one is pre-eminent. The first five are mutually reinforcing objectives. A development pattern that serves any one of these objectives is likely to serve the others. Nevertheless, achieving each objective requires individual consideration. The particular characteristics of the Mountain Land Area in regard to each must be identified and policies that serve each must be developed and enacted.~~

Recommendations for Next Revision:

The Mountain Land Plan is the only component plan that has not been recently reviewed and updated, primarily due to the fact that the Plan is considered to be fully implemented. An update of the Plan would be an extensive project and likely a complete rewrite to address current-day issues that are facing the mountain areas. Previous work on the Plan involved extensive meetings with residents and stakeholders and drew significant participation and public comment.

The next revision should take a similar community planning approach by soliciting comments on what issues are important to mountain residents and stakeholders, as well as whether the 2005 Plan's objectives remain relevant and should be documented and/or updated. Any new goals, objectives, and policies/strategies developed for the revised Plan should be vetted collaboratively with the public on an informal basis before developing a final draft for formal public comment. Given the extensive nature of a revision project for this Plan, it is recommended that no other major projects be undertaken simultaneously with this revision project unless they are related to and can be used to inform the Plan's revision.

Additionally, consideration should be given to revising the Mountain Land Plan together with the Agricultural Land Plan to develop a consolidated component plan for the County's rural, unincorporated areas. As listed above, the Mountain Land Plan's current objectives are also applicable to the non-mountainous rural areas west of the Shenandoah River. Combining these two plans can allow these issues to be evaluated on a County-wide scale while simultaneously addressing how the issues have unique impacts on areas of the County such as the mountain lands.

Should these two plans be combined, it is important to ensure that relevant detail in the current Mountain Land Plan is not lost in the development process and that input is obtained from mountain-land stakeholders to identify new issues, concerns, and viewpoints.

3. Berryville Area Plan

<p><i>Adoption Date of Current Version:</i> <i>May 17, 2016 (by Board of Supervisors);</i> <i>May 10, 2016 (by Berryville Town Council)</i></p>	<p><i>Status of Five-Year Review Resolution:</i> <i>Resolution adopted May 26, 2021 (review initiated)</i></p>
<p><i>Corresponding Comprehensive Plan Objectives:</i></p> <ul style="list-style-type: none"> • <i>Objective 9 – Designated Growth Areas for Development</i> • <i>Objective 10 – Economic Development</i> • <i>Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility</i> • <i>Objective 12 – Transportation</i> 	

~~In 1986, the governing bodies of Clarke County and the Town of Berryville appointed a joint Annexation Committee to study the Town’s need to annex areas on its periphery and to draft a proposed annexation agreement. In March 1987, the Committee recommended an annexation agreement for consideration by the two governing bodies. The County Board of Supervisors and the Town Council approved the annexation agreement on December 29, 1988.~~

~~The agreement provided for annexation by the Town of two areas: Area A and Area B. Area A is comprised of parcels that were developed and served by the Town's water and sewer systems as of the date of the agreement. The 350 acres in Area A were added to the Town's 493 acres on January 1, 1989.~~

~~The agreement stipulates that several requirements must be met before parcels in the 880-acre Area B can be annexed:~~

- ~~1. A land use plan for this area must be completed and adopted by the County and approved by the Town,~~
- ~~2. Amendments to the Zoning Ordinance and the Zoning Map to implement that plan must be enacted by the County, and~~
- ~~3. The Town provides water and sewer service to proposed development on the parcels.~~

~~As of January 1, 2007, the Town has annexed a total of 1,449 acres (or 84 %) of Area B since its establishment in 1989.~~

~~On April 21, 1992, the County and Town adopted the Berryville Area Plan, the land use and facilities policy for Annexation Area B. Implementing zoning ordinances were also adopted in April 1992, and properties were rezoned accordingly in July 1993. The Plan was amended in 1997, 2001, 2009, and 2010 to show changes in land use policies. The Town and County are conducting a review and update of the Berryville Area Plan concurrent with the update of both the Town and County Comprehensive Plans. Policy recommendations from both of these Plan updates will be incorporated into the revised Berryville Area Plan.~~

Summary:

The Berryville Area Plan was first adopted in 1992 by Clarke County and the Town of Berryville to serve as a joint land use plan for the Berryville Annexation Area – undeveloped County lands adjacent to the Town limits that were designated for addition to the Town in accordance with the 1988 Town-County Annexation Agreement. The 1988 Annexation Agreement created two separate annexation areas – A and B. The Berryville Area Plan applies only to properties located in Annexation Area B. For the purposes of this Area Plan, the “Annexation Area” references only Annexation Area B.

The Area Plan is intended to be used as the primary guidance document for land use decision-making within the Berryville Annexation Area as it was developed in coordination with the Town and County comprehensive plans. The Area Plan identifies five Goals that summarize the Area Plan’s intent, and also includes land use Objectives and Policies for implementing the Goals across eight subject areas -- Environment, Transportation, Housing, Land Use, Public Facilities, Economic Development, Urban Design, and Implementation. These Objectives and Policies should be used to evaluate new development proposals, make decisions on public infrastructure siting and improvements, and assist in long-range planning and growth management projects.

The Area Plan also divides Annexation Area B into a series of Sub-Areas, or groups of parcels or portions of parcels that have similar development characteristics. These Sub-Areas were created following an extensive evaluation of historical, environmental, and geological characteristics of each Sub-Area. Based upon these characteristics, recommended use types were assigned to the Sub-Areas with residential or commercial densities based upon the net developable portion of the parcels in the Sub-Areas. These densities are captured in a Future Land Use Table depicting the maximum number of residential units recommended for each Sub-Area recommended for residential use, and the maximum floor area per gross leasable area for each Sub-Area recommended for business use. As new or expanded developments are proposed, each application is evaluated against the applicable Sub-Area’s recommendations to ensure consistency with the Area Plan. Each Sub-Area remains subject to the Area Plan’s guidance and recommendations until the Sub-Area reaches maximum buildout.

1. Summary

~~The purpose of the Berryville Area Plan is to provide for the orderly development of lands in the designated annexation areas through a cooperative process shared by Clarke County and the Town of Berryville. The Area Plan is critical to furthering the County’s overall land use strategy of focusing residential and commercial development in the incorporated towns and designated growth areas.~~

~~To oversee the Berryville Area Plan and to help manage this cooperative process, the Berryville Area Development Authority (BADA) was formed to serve as a joint planning commission for the annexation areas. The BADA’s responsibilities include maintaining and updating the Area Plan, reviewing and providing recommendations on land use applications within the annexation areas, and working with the Town and County planning commissions and governing bodies on projects to implement the Area Plan’s recommendations.~~

~~The BADA is currently working on a comprehensive review and update of the Berryville Area Plan and has developed the following draft goals that will be proposed for inclusion in the updated Area Plan document. These draft goals were developed to more clearly summarize the Area Plan's purpose and objectives:~~

Current Component Plan Goals:

The Goals of the 2015 Berryville Area Plan are as follows:

1. Provide a platform for the cooperative planning and development of lands annexed or designated for future annexation into the Town of Berryville.
2. Ensure that the Town and County's land use and environmental objectives for the annexation areas, as reflected in the respective comprehensive plans, are compatible and coordinated.
3. Verify that planned public infrastructure (water, sewer, transportation, high-speed internet) is sufficient to support the future development needs as reflected in the Plan.
4. ***Maintain the*** streamlined and readily understandable process for development of lands covered by the Plan from annexation status designation through the land use approval process.
5. Strongly encourage context-sensitive development plans that are designed to complement ~~rather than compete with~~ Downtown Berryville, that accommodate growth in a logical and efficient manner, and that provide for the maximum protection and preservation of natural resources, historic resources, and open space.

Recommendations for Next Revision:

The Berryville Area Plan is jointly administered by the Town and County via the Berryville Area Development Authority (BADA) with technical support provided by the Town and County planning staffs. The BADA was formed in 1990 and serves as a joint planning commission with review authority over development proposals within the Annexation Area. As such, neither the County nor Town planning commissions are responsible for reviewing development proposals in the Annexation Area or for reviewing and updating the Area Plan.

The BADA adopted a five-year review resolution for the Plan in May 2021 with the following scoping items:

- ***The current Area Plan's goals and objectives and whether they remain relevant and current or need to be updated.***
- ***Changes in population and demographic information as reported in the final release of 2020 Census data.***
- ***The results of the Southeastern Collector Study (PrimeAE, April 2020).***

- *Cooperative economic development efforts between the Town and County.*
- *The build-out status of residential sub-areas (including Battlefield Estates, Hermitage Section 5, Berryville Glen, and Shenandoah Crossing) and whether these sub-areas can be removed from the Area Plan.*
- *The status of designated potential future growth areas.*
- *The impact of any updates to the County or Town Comprehensive Plans since the previous Berryville Area Plan update.*
- *The impact of new development projects, capital projects, or transportation improvements completed since the previous Plan update.*
- *Development of guidance for a future review and update of the Town-County Annexation Area Agreement.*
- *Any other subject not addressed or inadequately addressed by the current Plan*

2. Priorities for the Next Few Years

~~As noted above, a major review of the Berryville Area Plan is underway and is expected to be completed in conjunction with the adoption of the County and Town Comprehensive Plan updates. The primary goals of the review are to streamline and simplify the Area Plan's wording, to evaluate and recommend changes as necessary to the land use sub-areas in the Plan, and to recommend refinements to the Area Plan's policies and regulatory processes.~~

~~As the County proceeds with the update of the existing component plans and drafting of new recommended component plans, any new or amended strategies developed that may impact the Berryville Area Plan should be thoroughly evaluated and required changes to the Area Plan should be considered.~~

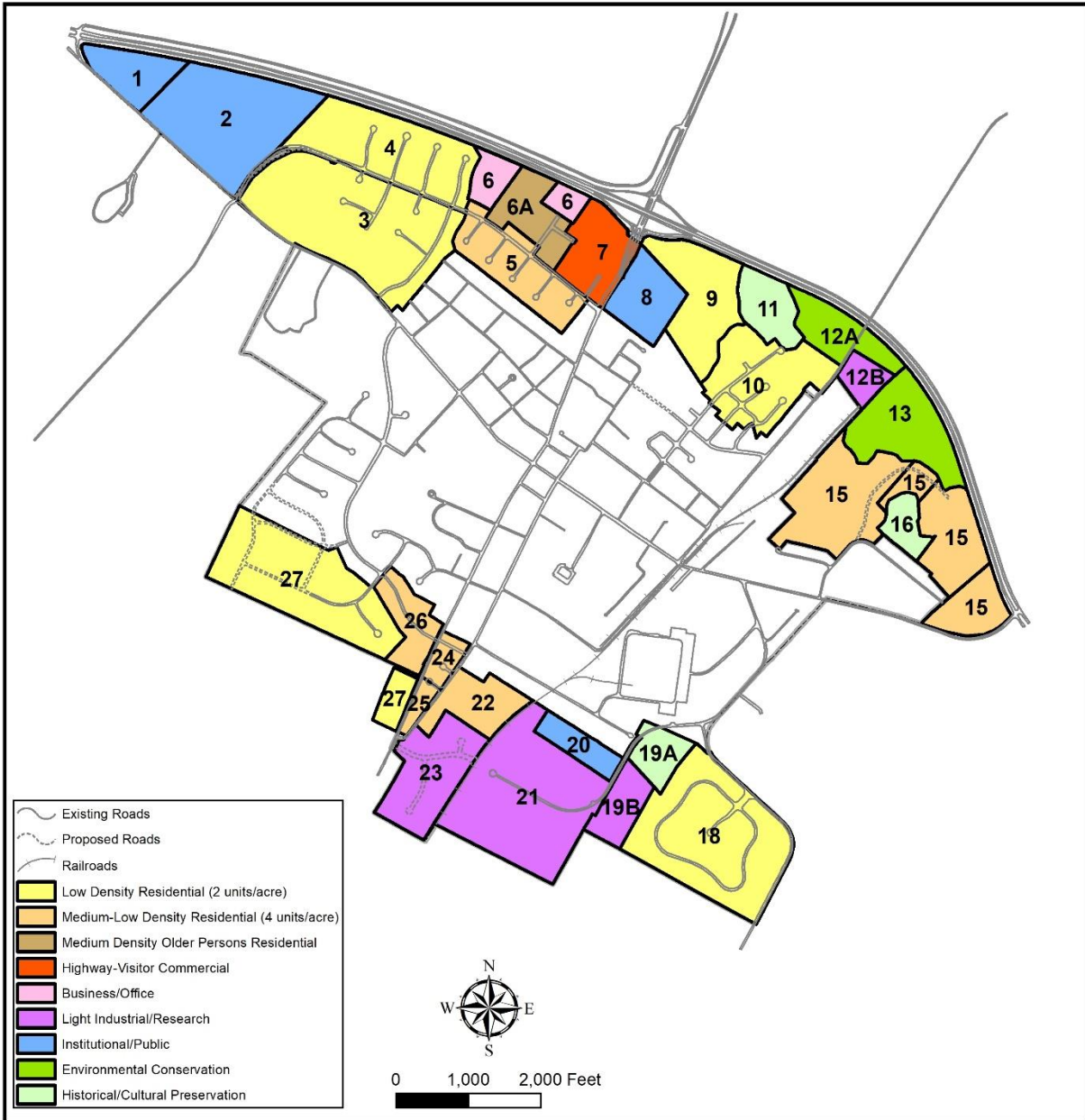
3. Major Policies

~~The Berryville Area Plan's objectives and policies are divided into topic-specific categories that can be summarized as follows:~~

- ~~1. Environment—Protect the Town's environmentally sensitive areas by focusing development away from waterways, sensitive slopes, rock outcroppings, poor drainage, and other similar areas.~~
- ~~2. Transportation—Coordinate new development with the Town's transportation plan.~~
- ~~3. Housing—Encourage housing stock that is compatible with the small town character and historic growth patterns.~~
- ~~4. Land Use—Planned areas for development should complement the small town character and should focus on areas with the strongest urban development potential.~~

5. ~~Public Facilities and Services—Coordinate development proposals with the capacity of development to support it including roads, water, sewer, solid waste, schools, and parks and recreation.~~
6. ~~Economic Development—New economic development should support the Town’s existing economic development base with compatible opportunities for new employment and tax revenue generation.~~
7. ~~Urban Design—Enhance and protect the Town’s aesthetics through quality land use design criteria and regulations.~~
8. ~~Implementation—Adopt policies, ordinances, and programs to further the Plan’s strategies.~~

MAP 11 - Berryville Area Plan Sub Areas



D. BUSINESS INTERSECTIONS AREA PLANS

~~The Board of Supervisors adopted the Waterloo Area Plan in August 1995 and adopted the Double Tollgate Area Plan in May 2002. The County's proposed Economic Development Strategic Plan will likely require additions and changes to the Area Plans, both of which will be reviewed concurrently with the development of the Economic Development Strategic Plan. The Double Tollgate Area Plan will also be amended to establish a deferred growth approach as recommended in the draft revised Comprehensive Plan.~~

1. Summary

~~The County has two intersections of major arterial highways that are federally designated routes: Waterloo (US Routes 50/17 & 340), and Double Tollgate (US Routes 340 & 522). These are uniquely well-suited locations for business activities dependent upon vehicular traffic. Area plans are necessary to insure that appropriate parcels are provided for such development, that the necessary utility services are available, and that the character of the development enhances the character of the County.~~

~~The original Waterloo Area Plan calls for an increase in the area zoned Highway Commercial from 18 acres to 49 acres, an expansion of uses in the Highway Commercial Zoning District, a provision of road networks in the commercial area, and an updating of stormwater management requirements. Since the last revision of the Plan, development has occurred in the southeastern quadrant of the intersection with the addition of a convenience store complex and a VDOT commuter parking lot.~~

~~The original Double Tollgate Area Plan calls for an increase in the area zoned Highway Commercial at this intersection from 24 acres to 44 acres, establishment of access management standards to protect the carrying capacity of the primary highways, and provision of central water and sewer service. While there has been a substantial increase in the volume of traffic on Route 522, no new private development has occurred since adoption of the Plan. Much of the planning associated with this Area Plan was based upon anticipated growth around nearby Lake Frederick (in excess of 2,000 new residential units) and other areas in Frederick and Warren Counties, as well as availability of public sewer from Frederick County. By 2013 and as a result of the downturn in the economy, only a fraction of the anticipated new growth had occurred in this area. Also, new state water quality requirements have reduced Frederick's available wastewater capacity. Given these changed circumstances and the costs for the County to extend public utilities to serve this area, the Comprehensive Plan recommends designating the Double Tollgate Area as a deferred growth area. The Area Plan will have to be reviewed and amended to add development triggers to indicate when and under what circumstances growth should occur in this Area.~~

~~Both the Waterloo and Double Tollgate Area Plans include specific maps to identify the boundaries of the Areas to ensure that development is confined to the parcels immediately surrounding the designated intersections.~~

~~In December 1995, the Board of Supervisors considered an area plan for the intersection of primary highways U. S. Route 340 and Virginia Route 7 Bypass. Many issues were identified in~~

~~the planning process, including: diverse land ownership patterns, significant areas prone to flooding, lack of water and sewer service, poor access to primary highways, and interrelationships with the Berryville Area Plan. The Board decided that any action establishing commercial uses at this intersection would be premature until these issues could be efficiently and economically addressed. The appropriate venue for the consideration of these issues would be as part of a future review of the Berryville Area Plan.~~

2. ——— Priorities for the Next Few Years

~~As noted above, both Area Plans will likely be amended to include new strategies developed through the creation of the Economic Development Strategic Plan, and the Double Tollgate Area Plan will be amended to establish deferred growth policies for the Plan Area. Since both areas can be significantly impacted by new development and infrastructure projects both in and near the Plan Areas, it is recommended that both Area Plans be reviewed on the same five-year schedule as the Comprehensive Plan.~~

3. ——— Major Policies

~~Both the Waterloo and Double Tollgate Area Plans provide recommendations regarding the scope and type of development that is desired, recommended changes to land use ordinances to manage and facilitate development and use types, policies to ensure sufficient utility capacity and transportation improvements, and strategies to maximize tax revenue generation and to encourage sustainable development.~~

4. Waterloo Area Plan

<u>Adoption Date of Current Version:</u> <i>December 20, 2016</i>	<u>Status of Five-Year Review Resolution:</u> <i>Resolution adopted on November 5, 2021</i>
<p><i>Corresponding Comprehensive Plan Objectives:</i></p> <ul style="list-style-type: none"> • <i>Objective 9 – Designated Growth Areas for Development</i> • <i>Objective 10 – Economic Development</i> • <i>Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility</i> • <i>Objective 12 – Transportation</i> • <i>Objective 13 – Broadband Internet Access</i> 	

Summary:

The Waterloo Area Plan, along with the Double Tollgate Area Plan, are two “business intersection area plans” that were developed to provide specific guidance for land use decision-making in two of the County’s major primary highway intersections. The Area Plan applies to the Waterloo unincorporated area immediately surrounding the intersection of Lord Fairfax Highway (U.S. 340) and John Mosby Highway (U.S. 50/17). The purpose of the Area Plan is to help ensure that appropriate land is provided for highway commercial uses, that necessary public utilities are available to support these uses, and that the character of development enhances the overall character of the County.

Current Component Plan Goals:

The Goals of the 2016 Waterloo Area Plan are as follows:

- 1. Facilitate the availability of broadband wired and wireless internet access and telecommunications for businesses and nearby residents.*
- 2. Develop proactive strategies to facilitate new business development and expansion of existing businesses in the Plan Area.*
- 3. Ensure that the Plan Area remains an attractive, marketable location for new and existing businesses and a destination for both local and out-of-area customers.*
- 4. Maintain the current boundaries of the Plan Area, its current form and scale, and its current capacity for development while remaining open to expansion when build-out is substantially complete.*

Plan Objectives include:

Objective 1. Set aside funding annually in the County budget for investment in capital projects to support the Waterloo Plan Area.

Objective 2. Pursue approaches to make public water and sewer connectivity more affordable for new and existing businesses.

Objective 3. Establish and maintain regulations to ensure quality and efficient site development standards and compatible uses.

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that the Waterloo Area Plan revision be conducted in accordance with the policy guidance in the aforementioned Comprehensive Plan objectives

5. Double Tollgate Area Plan

<u>Adoption Date of Current Version:</u> <i>December 20, 2016</i>	<u>Status of Five-Year Review Resolution:</u> <i>Resolution adopted on November 5, 2021</i>
<u>Corresponding Comprehensive Plan Objectives:</u> <ul style="list-style-type: none"><i>• Objective 9 – Designated Growth Areas for Development</i><i>• Objective 10 – Economic Development</i><i>• Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility</i><i>• Objective 12 – Transportation</i><i>• Objective 13 – Broadband Internet Access</i>	

Summary:

The Double Tollgate Area Plan, along with the Waterloo Area Plan, are two “business intersection area plans” that were developed to provide specific guidance for land use decision-making in two of the County’s major primary highway intersections. The Area Plan applies to the Double Tollgate unincorporated area immediately surrounding the intersection of Lord Fairfax Highway (U.S. 340/Va. 277) and Stonewall Jackson Highway (U.S. 522). The purpose of the Area Plan is to help ensure that appropriate land is provided for highway commercial uses, that necessary public utilities are available to support these uses, and that the character of development enhances the overall character of the County.

Current Component Plan Goals:

The Goals of the 2016 Double Tollgate Area Plan are as follows:

- 1. Designate Double Tollgate as a deferred growth area and develop policies to identify when the County should take proactive steps to facilitate economic growth.*
- 2. Maintain the current boundaries of the Plan Area, its current form and scale, and its current capacity for development while remaining open to expansion when build-out is substantially complete.*
- 3. Facilitate the availability of broadband wired and wireless internet access and telecommunications for businesses and nearby residents.*

Plan Objectives include:

Objective 1. Identify development triggers to indicate when Double Tollgate should no longer be considered a deferred growth area and when the County should take proactive steps and investments to facilitate economic growth.

Objective 2. Pursue funding opportunities with Federal and State agencies, or through private sector partnerships, to expand wired and wireless broadband and telecommunications infrastructure in the Double Tollgate Plan Area.

Objective 3. Establish and maintain regulations to ensure quality and efficient site development standards and compatible uses.

Recommendations for Next Revision:

The five-year review resolution adopted by the Planning Commission recommends that, in addition to the policy guidance in the aforementioned Comprehensive Plan objectives, two specific issues should be considered:

- The impact of serving the plan area with public water and public sewer.*
- Whether to change the plan area’s current “deferred growth” status.*

Since the 2016 adoption of the current Double Tollgate Area Plan, changes have occurred that necessitate re-examination of the “deferred growth” status that was assigned to this Plan Area. The former State-owned “Camp 7” property adjoining to the southeast and outside of the Plan Area is now being considered for other State uses and a portion of the property has been assigned to the Virginia Port Authority for economic development purposes. Some of the uses being contemplated will require public water and potentially public sewer beyond the capacity of the existing sewage treatment plant on the Camp 7 property.

In 2021, the Frederick County Board of Supervisors approved Clarke County’s request for public water and public sewer to be extended into the Double Tollgate area. This approval authorized Frederick Water to begin negotiations with Clarke County on a development agreement which includes designation of a formal water and sewer service area. Since public water and public sewer are likely to be needed for uses on the Camp 7 property, the service area would exceed the current boundaries of the Double Tollgate Plan Area.

As a result of these recent changes, the revision of the Double Tollgate Area Plan will need to address how the Plan Area boundaries will be affected by:

- 1. The potential future expansion of public water and sewer from Frederick County.*
- 2. The Virginia Port Authority’s economic development efforts on their portion of the Camp 7 property.*

This evaluation would include whether Camp 7 (in whole or in part) should be located in a water and sewer service area only, or whether the boundaries of the Plan Area and Highway Commercial-scale development should be contiguous with the water and sewer service area boundaries by extending the Plan Area into the Camp 7 property.

6. Water Resources Plan

<p><u><i>Adoption Date of Current Version:</i></u> <i>September 25, 2018</i></p>	<p><u><i>Status of Five-Year Review Resolution:</i></u> <i>To be adopted by September 25, 2023</i></p>
<p><u><i>Corresponding Comprehensive Plan Objectives:</i></u></p> <ul style="list-style-type: none"> <i>• Objective 1 – Agriculture</i> <i>• Objective 2 – Mountain Resources</i> <i>• Objective 3 – Natural Resources</i> <i>• Objective 6 – Outdoor Resources</i> 	

~~The Water Resources Plan is comprised of two sections, one addressing groundwater resources and the other addressing surface water resources. The Board of Supervisors adopted the groundwater section on October 20, 1998, and the surface water section on December 21, 1999. The following is an overview of these two sections.~~

Summary:

The Water Resources Plan was originally adopted in 1998 and 1999 as a two-part component plan addressing the County’s groundwater and surface water resources and issues separately. The most recent update in 2018 combined and modernized the Plan into a more concise document to address the County’s water quality and quantity issues.

The Plan should be used by property owners, elected and appointed officials, and other interested stakeholders to understand the County’s approach to protecting water resources. The Plan should also be applied in tandem with the recommendations found in the County’s Comprehensive Plan, Agricultural Land Plan, Mountain Land Plan, and other relevant component plans. Examples of some of the ways that this Plan can be used include:

- *Determining how the County should protect water resources, both quality and quantity, to ensure adequate clean supplies for County residents.*
- *Balancing water quality and availability with the desire to accommodate current and future growth and economic development.*
- *Evaluating land development applications and proposed changes to the Zoning and Subdivision Ordinances.*
- *Reviewing and updating the County’s Comprehensive Plan and component plans.*

1. Summary

A. Groundwater Resources

~~The groundwater resources section of the Water Resources Plan covers issues relating to groundwater, including groundwater contamination from non-point sources, protection of the Prospect Hill Spring water supply, and enhanced public education of the sensitive nature of limestone geology. This section is designed to accomplish Comprehensive Plan’s Natural Resources Objective that states: “Protect natural resources, including soil, water, air, scenery, night sky, wildlife resources, and fragile ecosystems.”~~

~~The groundwater resources of Clarke County are particularly susceptible to contamination resulting from human activities because of the sensitive nature of the aquifers found in carbonate rocks underling the Valley region of the County. Groundwater protection and resource problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types, because of the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.~~

~~Three-fourths of the people in Clarke County depend on groundwater as the source of their drinking water. Protecting groundwater from pollution, therefore, has been of primary importance in the County for many years. The urgency and economic necessity for doing so was highlighted in 1981, when the Town of Berryville had to abandon the wells that provided its~~

public water supply. The wells had been contaminated by a combination of nitrates, phenols, and herbicides, none of which could be traced to a single point source. Because new wells might later become contaminated, the Town decided to draw its water from the Shenandoah River and to construct a \$1.3 million plant to treat the river water.

Pollution of private wells was recognized as a problem in the 1960s. Pollution sources included improperly installed and maintained septic systems, underground storage tanks, and materials placed on the soil surface, including pesticides, herbicides, and human and animal wastes. Improper well installation was also a factor in these incidences of groundwater contamination.

The need for potable water in the Boyce Millwood area led to the creation of the Clarke County Sanitary Authority in 1968. By the mid-1970s, the Authority began supplying water to more than 200 residences and businesses from the high-yielding Prospect Hill Spring. The recharge area of the Spring is now protected by a natural resource conservation overlay district, in which no development may occur that would adversely affect the quantity or quality of the Spring water. In addition, the County has applied for federal designation of the Prospect Hill Spring as a sole source aquifer.

To minimize the effects of future growth and development, the Planning Commission established a Water Study Committee in 1985. This Committee directs plans and studies aimed at protecting the water resources of the County. Accomplishments of this Committee include the creation of the Clarke County Groundwater Protection Plan (1987), which, in addition to describing the sensitivity of Clarke groundwater, proposed a) an ordinance that limits land use around sinkholes, b) septic system installation guidelines, and c) water well construction regulations. The Groundwater Protection Plan is a precursor to the groundwater resources section of the Water Resources Plan. The Committee also contracted with the U.S. Geological Survey (USGS) to conduct an in-depth study on the hydrology and quality of groundwater to assist in land use and planning decisions made in the County. This study produced the Water Resources Investigation Report 90-4134 entitled "Ground Water Hydrology and Quality in the Valley & Ridge and Blue Ridge Physiographic Provinces of Clarke County, Virginia" (Wright, 1990).

B. Surface Water Resources

Surface waters include secondary streams or tributaries, such as the Shenandoah River, the Opequon Creek, and Spout Run (a state-designated trout stream). The surface water resources section of the Water Resources Plan addresses related issues including surface water contamination from point and non-point sources, off-stream water use, such as domestic supply and irrigation, and recreational uses. Point source pollution comes from specific, identifiable sources. Non-point source pollution is caused by diffuse sources such as erosion, runoff, precipitation, percolation, and direct deposition from livestock and wildlife.

The 2000 Bay agreement establishes a cap on the total amount of nitrogen and phosphorus that may be discharged from wastewater treatment facilities in Virginia. The cap is set at the level of those pollutants that the Bay can tolerate in order to correct its degradation. Most larger wastewater treatment facilities must upgrade their treatment facilities to achieve much lower discharges of such pollutants under individual caps placed on those facilities by the

~~Commonwealth. In any expansion of smaller facilities (Boyce, for example) substantial reductions in the discharge of nitrogen and phosphorus are required.~~

~~Under the coordination of the Department of Conservation and Recreation there is substantial new focus on old programs and the initiation of new programs to achieve the overall non-point source reductions goals which are being carried out by the County and the Lord Fairfax Soil and Water Conservation District. These efforts are focused in the County on (1) Acceleration of Agricultural Best Management Practices; (2) Expansion of Nutrient Management Planning and Implementation Efforts; (3) Consolidation and Strengthening of the Local Stormwater Management Program; (4) Enhancing Implementation of the Local Erosion and Sediment Control Program; (5) Enhancing Outreach, Media and Education Efforts to Reduce Pollution Producing Behaviors. Nitrogen, phosphorus and sediment non-point source reduction goals have also been set for the entire Shenandoah River watershed and tributaries including Spout Run.~~

~~The Federal Total Maximum Daily Load (TMDL) Program is currently being carried out by the Lord Fairfax Soil and Water Conservation District in the Abrams/Opequon watershed where an Implementation Plan has been developed to correct the fecal and sediment impairments in the watershed. Further TMDL Program-related efforts are anticipated shortly in the Wheat Spring Branch, Dog Run and other watersheds in the County. It has not been possible to develop a plan to correct the PCB impairment of the main stem of the Shenandoah River in the County where PCBs are concentrated in river sediments. The River continues under a Health Department Advisory against consuming fish caught in the River because of PCBs. The TMDL-related fecal impairment of Spout Run has been dealt with, at least in part, by the installation of sewer lines in Millwood.~~

~~Major fish kills have taken place in the Shenandoah River watershed in 2004-2006 with a dramatic reduction evident in the numbers of small-mouth bass and red-breasted sunfish. The State has established a fish-kill task force and a major effort is underway to determine the cause and find a solution to this serious environmental problem.~~

Current Component Plan Goals and Objectives:

The Goals of the 2018 Water Resources Plan are as follows:

Goal 1. *Protect and enhance water quality.*

Objective 1. *Protect groundwater resources from contamination and reduce contamination where present*

Objective 2. *Protect surface water resources from contamination*

Goal 2. *Protect and maintain water availability.*

Objective 1. *Protect water availability through regulatory action*

Objective 2. *Protect water availability through programmatic action*

Goal 3. *Engage and educate individuals, communities and governments in watershed stewardship.*

Recommendations for Next Revision:

The Water Resources Plan is not due for a five-year review evaluation until mid-2023. At that time, the following issues should be considered:

- *The impact of any new or modified Federal and/or state regulations addressing water quality or quantity.*

- *Evaluation of the County’s current water quality and quantity programs.*

2.—— Priorities for the Next Few Years

~~A complete review and update of the Water Resources Plan should begin shortly after the adoption of the revised Comprehensive Plan. The update should focus on adding information and policies for the following items:~~

- ~~1.—— Impact of recent changes to the State’s water quality regulations and stormwater management requirements.~~
- ~~2.—— Maintaining and expanding the County’s water quality and quantity programs and infrastructure.~~
- ~~3.—— Additions or changes to policies that may be impacted through the update of or development of new implementing component plans.~~

3.—— Major Policies

~~The Water Resources Plan contains a number of strategies to protect the quality of the County’s groundwater and surface water. Over the years, several ordinances have been passed, such as the Spring Conservation and Stream Protection Overlay Districts, to implement the Plan’s recommendations. Programs to test groundwater wells and to monitor water quantity have also been established. The importance of the Water Resources Plan should not be understated as the complexity of the County’s geology as well as the complexity of State and Federal regulations necessitate a wide range of strategies to ensure and protect water quality.~~

7. Historic Resources Plan

<u>Adoption Date of Current Version:</u> <i>June 19, 2018</i>	<u>Status of Five-Year Review Resolution:</u> <i>To be adopted by June 19, 2023</i>
<u>Corresponding Comprehensive Plan Objectives:</u> <ul style="list-style-type: none">• <i>Objective 4 – Historic Resources</i>• <i>Objective 8 – Village Plans – Millwood, Pine Grove, White Post</i>	

~~The Historic Resources Plan was first adopted by the Board of Supervisors in August 1994 and was readopted as part of the Comprehensive Plan in 2001 and 2007.~~

Summary:

The Historic Resources Plan was first adopted in March 2001 and most recently was revised in June 2018. The purpose of the Plan is to identify and develop strategies and initiatives to facilitate the long-term protection and preservation of the County's historic resources. The Plan is action-oriented in nature with the County's Historic Preservation Commission (HPC), as supported by the Department of Planning and the County's architectural history consultant, charged with implementing its recommendations.

1. Summary

~~Historic and natural resources define the physical character of Clarke County. The County's documented historic and cultural resources originated with Native Americans, thought to have been present as long as 100 centuries ago, followed by Europeans and Africans, who arrived almost three centuries ago and established the current settlement pattern. Over the past 270 years, Clarke County has evolved from a rural frontier to part of the Washington Metropolitan Area. The County intends to retain its historic resources and guard its unique character from the ever-increasing pressure of cultural homogenization.~~

~~To protect its historic resources, the County amended its zoning ordinance to establish a historic preservation commission and local historic district regulations. To encourage the preservation of these resources, the County amended its tax regulations to allow a freeze on property tax assessments for rehabilitated historic properties. In 1989 and 1992, the County conducted two surveys that documented the 962 historic structures and sites in Clarke County dating from 1710 to 1943.~~

~~The Commonwealth of Virginia helps protect historic resources by enabling local governments to have local regulations, providing grants for historic research and building rehabilitation, and providing tax credits for building rehabilitation. In addition, the U.S. Government also encourages historic structure rehabilitation through grants and tax credits. Virginia and the U.S. Government have established, respectively, the Virginia Landmarks Register and the National Register of Historic Places to list and recognize specific historic resources. In Clarke County, 28 properties are listed individually on these registers, including two national historic landmarks. In addition, seven national register districts cover a total of 33,750 acres (53 square miles or 27% of the County) and contain 1,478 contributing structures and sites.~~

Current Component Plan Goals and Objectives:

The Historic Resources Plan does not contain a typical list of goals, objectives, and strategies/policies. Instead, it includes a list of future projects to be undertaken by the Historic Preservation Commission (HPC) in furtherance of the County's historic preservation program.

Recommendations for Next Revision:

The Historic Resources Plan is not due for a five-year review evaluation until mid-2023. At that time, the following issues should be considered:

- *Identifying and prioritizing new and existing action items*

- *Evaluating the future form and structure of the County’s historic preservation program including the role of the Historic Preservation Commission and County staff, as well as long-term funding of historic preservation initiatives*

2. ——— Priorities for the Next Few Years

Significant implementation of the Historic Resources Plan has taken place since the Plan’s original adoption including the creation of four historic districts and a fifth district in process, establishment of historic preservation regulations in the Zoning Ordinance, and creation of a Historic Preservation Commission. In the next few years, a review and update of this Plan should take place with a focus on identifying and prioritizing remaining work items in addition to creating strategies to ensure their implementation.

3. ——— Major Policies

The specific policies for historic preservation are found in the Comprehensive Plan. The Historic Resources Plan document contains background information on the County historic preservation efforts, State and Federal programs and details on rehabilitation standards and tax credit programs. Policies found in the Comprehensive Plan focus on the County’s role to assist and facilitate property owners to place their properties on historic registries or in easement, to create ordinance language to protect existing historic resources, and to promote other historic preservation efforts.

G. CAPITAL IMPROVEMENT PLAN

The intent of the Capital Improvement Plan (CIP) is to provide an outline of potential facility and services needs based upon the goals outlined in the Comprehensive Plan. Both the 2001 and 2007 Comprehensive Plans included complete CIPs. The County’s CIP has not been updated since 2007.

1. ——— Summary

A capital improvement plan (CIP) is an annual or five-year schedule of capital projects for public facilities. Types of public facilities in a CIP might include public water and sewer, parks, public safety, public buildings, and schools. Many communities prioritize these facilities and develop a CIP for three or four public facilities. Chief among these are public water, wastewater, and public safety. The capital improvement plan can be supported by a Fiscal Impact Analysis and the same levels of service may be used in both analyses to assess the need for new facilities and the cost of providing them.

To help tie the CIP to the Comprehensive Plan even more closely, the County may consider instituting level-of-service (LOS) standards for some or all services and facilities provided by county funding. Level of service is a term used to describe a benchmark or standard against which the provision of a service can be measured. Using public water as an example, the LOS may be related to the capacity of the pipes carrying the water, or the pressure of water in the home, or the capacity to treat potable water in gallons per day. The important thing with a LOS is that it can be established in many ways but is then used as a way to measure continued

performance. If a goal LOS is set, it can be used to assess the need for new facilities to maintain the desired level of service.

The recommended process for establishing a CIP for a given facility includes the following:

- 1) Establish a level of service (LOS) for the facility;
- 2) Identify existing conditions of the facility, based on the established LOS;
- 3) Identify deficiencies (if they exist), and costs to correct the deficiencies;
- 4) Identify and utilize appropriate land use assumptions from the comprehensive plan;
- 5) Estimate demand for the facility over the planning horizon, based on the land use assumptions and the established LOS;
- 6) Estimate capital improvements needed to accommodate new growth and development over the planning horizon to maintain the established LOS;
- 7) Estimate costs over the next five years (Five-Year CIP), to provide the needed improvements;
- 8) Develop a financially feasible program to fund the capital improvements identified in the Five-Year CIP;
- 9) Review and adopt the CIP, (responsibility of Planning Commission and Board of Supervisors); and
- 10) Update annually.

Financial feasibility is the key element in CIP. Once needs and goals are identified, the county must have a feasible financial structure to bring about the infrastructure improvements. If the County hinges approval on the provision of services, it needs to have a service provision plan, which identifies the targeted or required levels of service.

The CIP is a planning tool. Capital expenditures are authorized through the annual operating budget as capital outlays. This Program does not bind the Board of Supervisors to carry out any of the proposed projects, nor does it appropriate or require the expenditure of money. The CIP also provides the basis for evaluating cash proffers associated requests to amend the County Zoning Map. Cash proffers benefiting public services should be favorably considered only if they fully address the capital costs incurred by the proposed use.

Capital improvements provide a base for essential services provided by the County to its citizens. These services include education, police and fire protection, and solid waste and recycling disposal. In addition, they provide a base for community services such as social services, parks and recreation, and library services.

~~Because provision of public facilities can influence when and where development will take place, they are very important growth management tools. Sufficient planning for future public facility needs is essential to provide them in the most efficient and equitable manner. Responding to the goals and objectives outlined in the Comprehensive Plan can best do this.~~

~~The construction, operation, and maintenance of public facilities are very expensive, and there is never enough money at any time to meet all demands for new and expanded facilities. Directing development to areas where facilities are already available or planned allows such facilities to be utilized more fully. In contrast, scattered development increases the demand for capital improvements and public services over a larger area, dramatically increasing public costs. Therefore, capital improvements and public services should be provided in areas designated for growth by the Comprehensive Plan.~~

~~The CIP is a plan to guide the construction or acquisition of capital projects over the next ten years. It identifies needed capital projects, estimates their costs, prioritizes them by year, and, in many instances, identifies sources of funding other than County revenues. The Program time schedule may change, depending on new information, availability of funds, population changes, or unexpected circumstances.~~

~~**2. Priorities for the Next Few Years**~~

~~As noted above, the CIP has not been updated since 2007 and CIPs typically operate on a five-year schedule. The Board of Supervisors will need to determine whether they want to begin preparing and adopting a CIP on an annual basis, whether they want to require level of service performance measures to be established to justify new projects, and whether they want to direct the Planning Commission to prepare the CIP on an annual basis as allowed for in the Code of Virginia.~~

~~**3. Major Policies**~~

~~The following principles have been used to identify Program elements:~~

- ~~1. Capital improvements and public services shall be provided to the citizens of Clarke County in the most timely, efficient, economical, and equitable manner possible.~~
- ~~2. The locations of new capital improvements shall be within the designated growth area, in accord with the Comprehensive Plan.~~
- ~~3. All capital improvements shall enhance the quality, identity, and appearance of established neighborhoods, while preserving the County's natural, cultural, and historic resources.~~

8. Transportation Plan

<u>Adoption Date of Current Version:</u> March 18, 2014	<u>Status of Five-Year Review Resolution:</u> Adopted on January 4, 2019 (review initiated)
Corresponding Comprehensive Plan Objectives: <ul style="list-style-type: none">• Objective 10 – Economic Development• Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility• Objective 12 – Transportation	

~~The intent of the Transportation Component Plan is to implement the Comprehensive Plan's transportation policies that are set forth in Objective 12. The Transportation Component Plan was first added to the Comprehensive Plan in 2007. It was incorporated into the body of the Comprehensive Plan as Chapter III, Item H. The revised Transportation Plan will be developed as a separate document consistent with the other implementing component plans.~~

Summary:

The Transportation Plan was developed in accordance with Objective 12 of the Comprehensive Plan to ensure “that the County’s transportation system provides safe and efficient means for all modes of travel for citizens and visitors through coordinated land use decision-making and judicious use of limited fiscal resources. The Plan is designed to comply with the requirements of Code of Virginia §15.2-2223 which outlines specific transportation elements that must be included as part of a jurisdiction’s comprehensive plan. These required elements include:

- An inventory of the County’s transportation system
- Planning assumptions to support the County’s policies and proposed improvement projects
- A needs assessment that compares the existing transportation system with the County’s land use policies to determine how future growth will affect the system
- Proposed improvement projects with cost estimates that address the County’s transportation needs.

1. Summary

~~The Transportation Component Plan is designed to comply with the requirements of Code of Virginia §15.2-2223 which outlines specific transportation elements that must be included as part of a jurisdiction’s comprehensive plan. These required elements include:~~

- ~~1. An inventory of the County’s transportation system.~~
- ~~2. Planning assumptions to support the County’s policies and proposed improvement projects.~~

- ~~3. A needs assessment that compares the existing transportation system with the County's land use policies to determine how future growth will affect the system.~~
- ~~4. Proposed improvement projects with cost estimates that address the County's transportation needs.~~

The latter element—proposed improvement projects—is a dynamic list that can change periodically in both scope and priority depending on the following factors:

- ~~1. Available funding sources.~~
- ~~2. Impact of or contribution to a project from the private sector.~~
- ~~3. Increased usage of a road or intersection as demonstrated by traffic counts.~~
- ~~4. Increase in the number of accidents at an intersection or road segment.~~
- ~~5. Other safety hazards such as bridge deficiencies and flooding/stormwater.~~

The Transportation Component Plan is intended to be used in concert with other transportation planning efforts such as the annual review of the County's Six Year Secondary Road Construction Plan and Budget and the State's Six Year Plan for Transportation Improvements.

Current Component Plan Strategies:

In addition to a list of priority transportation projects, the Transportation Plan contains the following recommended strategies:

- 1. Conduct a formal evaluation of the Transportation component plan in conjunction with the five-year review of the County's Comprehensive Plan. Perform interim evaluations of the Transportation Plan to gauge how any new impacts or funding challenges may impact the Plan's approach.*
- 2. Continue to focus the County's limited transportation funds on projects that improve traffic safety, improve functionality, add bicycle or pedestrian features, provide new or enhance existing commuting opportunities, or replace existing gravel public roads or road segments with new hard surfaces.*
- 3. Oppose public and private efforts to expand capacity of the County's road network outside of the incorporated towns and business growth areas including the State and Federal primary highways.*
- 4. Support projects that improve safety, functionality, and capacity of the public road network within the Towns of Berryville and Boyce and the business growth areas of Waterloo and Double Tollgate.*
- 5. Develop and maintain a clearinghouse of County traffic data, in conjunction with the Virginia Department of Transportation, to aid the governing bodies in making land use decisions and allocating transportation funding to specific projects.*

Recommendations for Next Revision:

The Planning Commission adopted a five-year review resolution in January 2019 with the following issues recommended for consideration:

- 1. Integrate new transportation funding programs adopted or modified since 2014, including the Commonwealth of Virginia’s “Smart Scale” program, into the Transportation Plan.*
- 2. Evaluate each priority improvement project to determine whether the project remains relevant and would address current County needs, along with the likelihood of being funded through State and/or Federal programs such as “Smart Scale.”*
- 3. Evaluate whether to include new priority projects including the Town of Berryville’s proposed southeastern collector road that may involve the extension of Jack Enders Boulevard to U.S. 340.*
- 4. Determine whether to integrate recommendations from the 2014 Town of Berryville-Clarke County Bicycle and Pedestrian Plan into the Transportation Plan.*
- 5. Determine whether to request the Virginia Department of Transportation to conduct new transportation studies, such as a crossover study of the County’s four-lane divided primary highways, to aid in developing future project and funding priorities.*
- 6. Coordinate any proposed changes to Comprehensive Plan Objective 12 (Transportation) with any revised recommendations in the Transportation Plan.*

2. ——— Priorities for the Next Few Years

~~Given the changing nature of State and Federal funding, it is recommended that the project priorities in the Transportation Component Plan be evaluated on an annual basis. This would enable project scopes and priorities to be adjusted if new funding programs are made available for specific types of transportation projects. The Plan could be evaluated in conjunction with the Board of Supervisors’ annual review of the Six Year Secondary Road Construction Plan and Budget, which typically takes place in the spring of each year.~~

~~It is also recommended that the County continue to assemble up-to-date traffic data via the Virginia Department of Transportation, law enforcement agencies, and other resources to assist in identifying new projects and obtaining funding to complete them.~~

3. ——— Major Policies

~~Specific transportation policies may be found in Chapter II, Objective 12 of the Comprehensive Plan and are further elaborated upon in the Transportation Component Plan. In summary, the County’s transportation policies mirror the overall land use philosophy by encouraging capacity-expanding projects only within the incorporated towns where new development is directed. For the unincorporated areas, the County focuses on projects to improve safety and functionality as well as to hard surface public roads that are currently gravel surfaced. The County is generally opposed to any projects to expand the capacity of the State and Federal primary highways and~~

~~instead encourages projects that provide enhanced commuter opportunities and reduction in single-occupant vehicles.~~

9. Recreation Plan

<u>Adoption Date of Current Version:</u> <i>December 15, 2020</i>	<u>Status of Five-Year Review Resolution:</u> <i>To be adopted by December 15, 2025</i>
<u>Corresponding Comprehensive Plan Objectives:</u> <ul style="list-style-type: none">• <i>Objective 3 – Natural Resources</i>• <i>Objective 6 – Outdoor Resources</i>	

Summary:

The County’s first Recreation Plan was adopted in August 2015 and underwent a modest technical update in December 2020. The purpose of the Plan is to address the recreational needs of the community and to describe the existing resources, how they will be protected and promoted, and the steps that should be taken to ensure the continued viability and enhancement of these resources for present and future generations. The Plan is action-oriented with specific functional strategies and recommendations to protect, promote, grow, and enhance the County’s active and passive recreational resources.

Current Component Plan Goals:

The 2020 Recreation Component Plan identifies the following overarching goals:

- 1. Meet the recreation needs of the community*
- 2. Increase awareness of all recreational activities*
- 3. Assist in maximizing the recreation value of existing assets*
- 4. Promote connectivity among the County’s active and passive recreation resources*
- 5. Update the Recreation Plan on a 5 year cycle*

Recommendations for Next Revision:

The Recreation Plan was last revised in December 2020 and is not due for a five-year review evaluation until December 2025. At that time, the Plan’s goals and objectives should be evaluated against the County’s future recreation needs and any Federal, State, or private sector plans to modify, expand, or construct new recreation facilities in the County.

NEW COMPONENT PLAN TO BE DEVELOPED

Village Plan

Corresponding Comprehensive Plan Objectives:

- ***Objective 1 – Agriculture (for Millwood and White Post)***
- ***Objective 2 – Mountain Resources (for Pine Grove)***
- ***Objective 8 – Village Plans – Millwood, Pine Grove, White Post***
- ***Objective 9 – Designated Growth Areas for Development***
- ***Objective 10 – Economic Development***
- ***Objective 11 – Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility***
- ***Objective 12 – Transportation***
- ***Objective 13 – Broadband Internet Access***

Summary:

The need to develop a component plan for the County’s unincorporated villages was first identified in the 2013 Comprehensive Plan. These villages include Millwood, Pine Grove, and White Post and are not designated by the County as growth areas despite the fact that they each possess a concentration of residential and commercial uses. Furthermore, White Post is served by public water and Millwood is served by public water and sewer which can be an enticement for potential future growth pressures. A Village Plan would include strategies to help address future land use requests and infrastructure needs while simultaneously ensuring that the character of each village is maintained and unintended, unplanned growth does not occur in the future.

Recommendations for Development:

Similar to the update of the Mountain Land Plan, the creation of a new Village Plan is likely to be a complex and time-consuming project. Development of the Plan should take a community planning approach by soliciting input from the residents and business owners for each village. This input should include defining how these stakeholders view the character of their village and its future growth and development. Planning “charrettes” or workshops could be used as a hands-on approach for stakeholders to work informally with Commissioners and staff and to visualize the process through mapping and prioritization exercises. Efforts should also be taken to be inclusive of the viewpoints of all stakeholders, and draft documents should be vetted with each community deliberately as the plan development process progresses.

Given the extensive nature of a project to develop this new Plan, it is recommended that no other major projects be undertaken simultaneously with this revision project unless they are related to and can be used to inform the Plan’s creation.

I. — NEW PROPOSED IMPLEMENTING COMPONENT PLANS

Three new Implementing Component Plans are recommended for development in the 2013 Comprehensive Plan:

1. — Economic Development Strategic Plan

In early fall 2012, the Board of Supervisors made the creation of an Economic Development Strategic Plan a high priority by requesting the Planning Commission to make it the top priority upon completion of the Comprehensive Plan revision. The Board also hired an economic development consultant to assist with the development of the Strategic Plan.

The Plan will include specific strategies to implement the Comprehensive Plan's economic development policies found in Objective 10. These policies include promoting economic development that is compatible with the County's existing uses and character; attracting businesses that complement or work in conjunction with the County's existing agricultural, commercial and industrial businesses; and focusing development in designated growth areas and requiring high quality design standards.

2. — Recreation Plan

Objective 6 recommends the development of a Recreation Plan that encompasses the County's parks and recreation program as well as the local, state, and Federal active and passive recreation resources in the County. The purpose of the Plan would be to tie together various recreation-related plans with specific strategies to enable the County to maximize, grow, and protect our recreational resources. These plans include but are not limited to Parks & Recreation Department master plans, bike and pedestrian plans, and the Virginia Outdoors Plan.

3. — Village Plan

Objective 8 recommends the creation of a Village Plan for the established villages of Millwood, Pine Grove, and White Post. The County currently does not designate these villages as designated growth areas despite the fact that they each possess a concentration of residential and commercial uses. Furthermore, Millwood and White Post both have public water and/or sewer services. The primary purpose will be to provide strategies to help address future land use requests and infrastructure needs while simultaneously ensuring that the villages' character is maintained and unintended, unplanned growth does not occur in the future.

OTHER RELEVANT PLANS AND STUDIES

From time to time, the County develops plans and studies to guide and inform decision-making on a variety of issues. While all plans and studies that are adopted or accepted for use should be developed in accord with the Comprehensive Plan's guidance, not all are appropriate for inclusion as an implementing component plan of the Comprehensive Plan. Some plans and studies focus on a narrow or technical issue that is not directly related to the Comprehensive Plan. Other plans have goals or action items that evolve over a shorter time span and need to be updated annually or more frequently than the five-year time span of a component plan.

When such plans and studies are developed, the plan or study's initial scoping should ensure consistency with the Comprehensive Plan and implementing component plans. For example, a study to identify an area for new County athletic fields should be scoped using applicable recommendations in the Comprehensive Plan's Objective 6 (Outdoor Resources) and Objective 11 (Public Infrastructure, Capital Improvement Planning, and Fiscal Responsibility), and any applicable recommendations in the Recreation Component Plan. When the plan or study is completed, there should also be a subsequent finding as part of the action to adopt or accept that the plan or study is consistent with the Comprehensive Plan. These measures will help to ensure consistency across all County planning documents and resources and will also help to ensure that the Comprehensive Plan remains a strong and vital expression of the County's land use and growth philosophies.

Examples of other types of plans and studies developed by the County are described below.

1. Capital Improvement Plan

The Capital Improvement Plan (CIP) is a planning document used to prioritize and fund capital projects over a five-year timeframe. The CIP is reviewed on an annual basis in conjunction with the County's annual budget process. The Planning Commission's role in the process is to evaluate proposed projects and provide a formal recommendation to the Board of Supervisors on the following issues:

- Conformance with the Clarke County Comprehensive Plan and any applicable implementing component plans.*
- Whether the project descriptions include a justification or need for the project.*
- Whether the project maximizes public convenience and accessibility.*
- Whether the project avoids extension of public infrastructure outside of designated growth areas which could cause new development pressures (where applicable).*

The CIP was previously considered to be an implementing component plan of the Comprehensive Plan. In 2020, a formalized CIP review process was developed which would have the Commission review and provide recommendations in the fall of each year to be used by the Board of Supervisors in their annual budget process. This formalized annual review process requires a much more frequent review than the five-year schedule of a component plan. The CIP is no longer considered to be an implementing component plan of the Clarke County Comprehensive Plan.

2. Economic Development Strategic Plan

The County's first Economic Development Strategic Plan was adopted in October 2014 as a new component of the 2013 Comprehensive Plan. By virtue of being a "strategic plan," its recommendations primarily consist of short-to-medium term action items to be implemented. The purpose of the Strategic Plan is to guide the County's economic development initiatives

while supporting and drawing guidance from the County's overall growth management policies for rural land conservation and other key goals found in the Comprehensive Plan and component plans. The Strategic Plan contains the following guiding principles:

- *Support the County's Comprehensive Plan and desired future land use pattern of concentrated population within a largely rural environment. The County must avoid compromising its overall growth management philosophy by taking advantage of the natural and historic resources in ways that help preserve them while enhancing their economic value.*
- *Grow the tax base as the primary objective, with a secondary objective to increase economic activity through the expansion of business transactions and/or by adding new jobs, particularly if the jobs are filled by the existing labor force or in-commuters.*
- *Build on past and current successes in business development.*
- *Target short-term as well as long-term economic prospects.*
- *Foster close cooperation between the County and the Town of Berryville, as the two jurisdictions form a unified local economy.*
- *Set and memorialize clear priorities and responsibilities to allow the County and Town to best use limited resources, take best advantage of the community's key attributes, and focus on the most important and practical actions for early success.*

The 2022 Comprehensive Plan Revision includes the removal of the Economic Development Strategic Plan as an implementing component plan. Implementation of the 2014 Strategic Plan's action items has resulted in the establishment of a formal County economic development program staffed by a full-time director managing a range of programs and initiatives. While it remains important to maintain a Strategic Plan, such a plan should now be in a form that allows for it to be evaluated and modified on an annual basis instead of once every five years with short-term objectives that can be changed and updated flexibly at a similar frequency.

3. Telecommunications Infrastructure and Broadband Study 2020

The Telecommunications Infrastructure and Broadband Study 2020 was developed in November 2016 for the County by the Atlantic Group, a telecommunications consulting firm, for the purpose of identifying strategies to encourage the expansion of cellular communication and broadband internet access throughout Clarke County. The Study is action-oriented in nature and includes the consultant's recommendations for changes to the County's zoning regulations for telecommunication towers, strategies for working with private-sector providers of internet service and infrastructure through a dedicated broadband committee, and funding strategies. The Study was accepted by the Board of Supervisors in December 2016 and was used to develop zoning ordinance text amendments to facilitate tower construction and the formation of a Broadband Implementation Committee to work with potential private-sector partners.

4. Energy and Resource Management Plan

The purpose of the Energy and Resource Management Plan is to private goals and policies to address energy efficiency, conservation, and education and to create a plan to reduce the County's overall environmental impact in order to save tax dollars and improve services. The Plan was developed beginning in 2008 by a team of business leaders, citizens, elected officials, and County staff initially as an interim report addressing nine categories where resource management could be achieved:

- *Energy efficiency*
- *Renewable energy*
- *Transportation*
- *Land use*
- *Water conservation*
- *Recycling and waste management*
- *Education and outreach*
- *Incentive programs*
- *County employee management*

The interim report was developed into the Plan which the Board of Supervisors adopted, along with a Resolution Establishing Energy Resource Management Policies, on January 19, 2010. The Plan has been used to create a recycling program and to implement energy-saving measures in County buildings among other initiatives.

5. Town of Berryville & Clarke County Bicycle & Pedestrian Plan

The Town of Berryville & Clarke County Bicycle & Pedestrian Plan was developed in 2014 by the Northern Shenandoah Valley Regional Commission (NSVRC) and a work group of Town and County appointed officials and staff. The purpose of the Plan is to provide a comprehensive overview of the existing transportation network with recommendations for bicycle and pedestrian enhancements to better serve transportation, recreation, and economic development objectives. This Plan also includes recommendations to incorporate bicycle and pedestrian improvements into the Town and County's comprehensive plans, strategies to fund construction of recommended improvements, coordination with economic development to promote tourism opportunities, and coordination with law enforcement and schools to promote safety and awareness training.

6. Cost of Community Services Study

The Cost of Community Services Study was developed in 2018 on behalf of Clarke County by the University of Virginia's Weldon-Cooper Center for Public Service. The Study examines the cost of providing public services for each of the County's different land uses (i.e. agriculture/open space, residential, commercial/industrial). Ratios are used to gauge the demand placed on local government services in comparison to the tax revenue that is generated by the land use. This information compares how existing land uses impact the county budget differently and can be used for county land use and infrastructure planning.

APPENDIX

Geological Profile

APPENDIX - Geological Profile

The notable geological features of Clarke County are described below. They include geologic areas, relief, watercourses, soil types, and groundwater. All are to some degree manifestations of the County's geologic framework, which dictates the nature of the topographic features and relief, the types of soils that occur, and the characteristics and locations of surface and underground water.

1. Geologic Areas

Map **8 12** shows the general geology of the northern Shenandoah Valley. Clarke County encompasses three geologic areas running south-north. From east to west, these zones are described as Blue Ridge, eastern lowland on carbonate rock, and central lowland on shale and siltstone.

a. Blue Ridge

The Blue Ridge geologic area lies east of the Shenandoah River and along the western slope of the Blue Ridge Mountains. It is composed primarily of Proterozoic metamorphosed intrusive and extrusive igneous and sedimentary rock, formed some 900 million to 600 million years ago¹. The high temperatures and pressures of metamorphism turned the Blue Ridge's diabbases into metadiabase (greenstone); basalts into metabasalts; rhyolitic tuffs into metatuffs; shales into metashales, slates and phyllites; sandstones into metasandstones and quartzites; and granites and diorites into gneisses. Later, a Cambrian sea, whose marine deposits form the carbonate rock of the eastern lowland, covered the landscape.

b. Eastern Lowland on Carbonate Rock

The eastern lowland geologic area, from the Shenandoah River west to the Opequon Creek, constitutes three-quarters of Clarke County. Its carbonate-rock framework varies but is primarily limestone and dolomitic limestone. Purest limestone is found on the western part of this area. Dolomitic limestone is found toward the east, along with lesser amounts of chert, sandstone, shale, siltstone, and mudstone. These sedimentary rocks, formed as chemical precipitates of calcium carbonate or sediments of mud or sand, were consolidated under shallow seas approximately 542~~1~~-488 million years ago. They now constitute a 12,000-foot thick limestone and dolomitic-rock sequence that underlies the Shenandoah Valley. Areas that are underlain by carbonate rocks, such as limestone and gypsum, contain solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

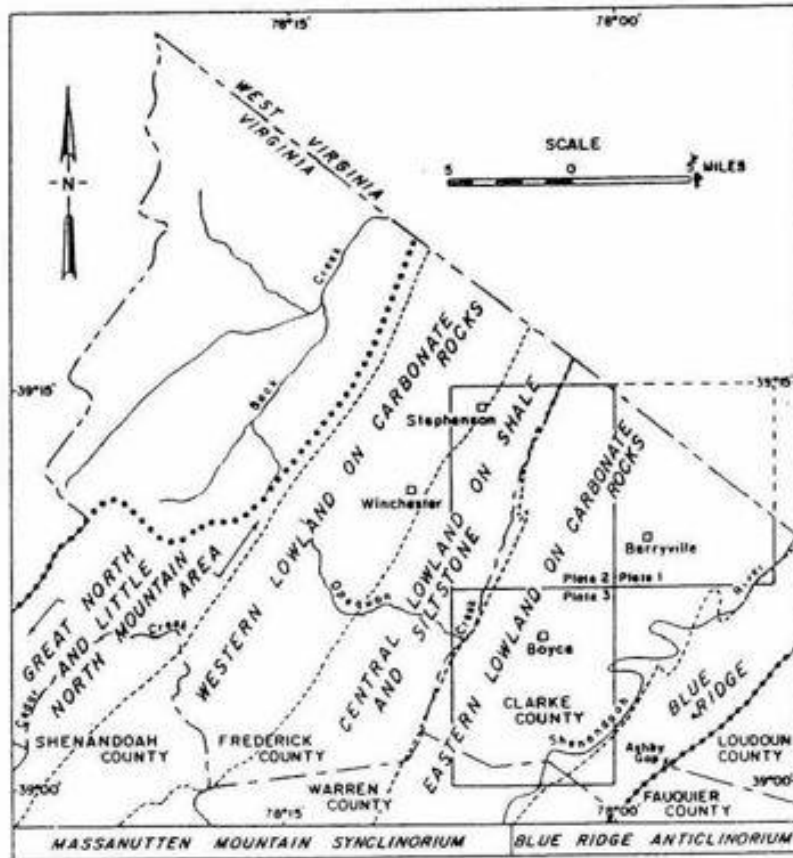
c. Central Lowland on Shale and Siltstone

The far western sliver of Clarke County is in the area described as the central lowland on shale and siltstone, which extends primarily across eastern Frederick and Shenandoah Counties and western Warren County. These are the youngest rocks remaining in Clarke County, deposited during the Ordovician Period (488-443 million years ago) over the older limestone of the eastern lowland. Low rounded hills, a large number of surface streams, a thin soil cover, and an abundance of shale chips characterize the central lowland.

¹ Note that prehistoric time increments are typically referenced in reverse order.

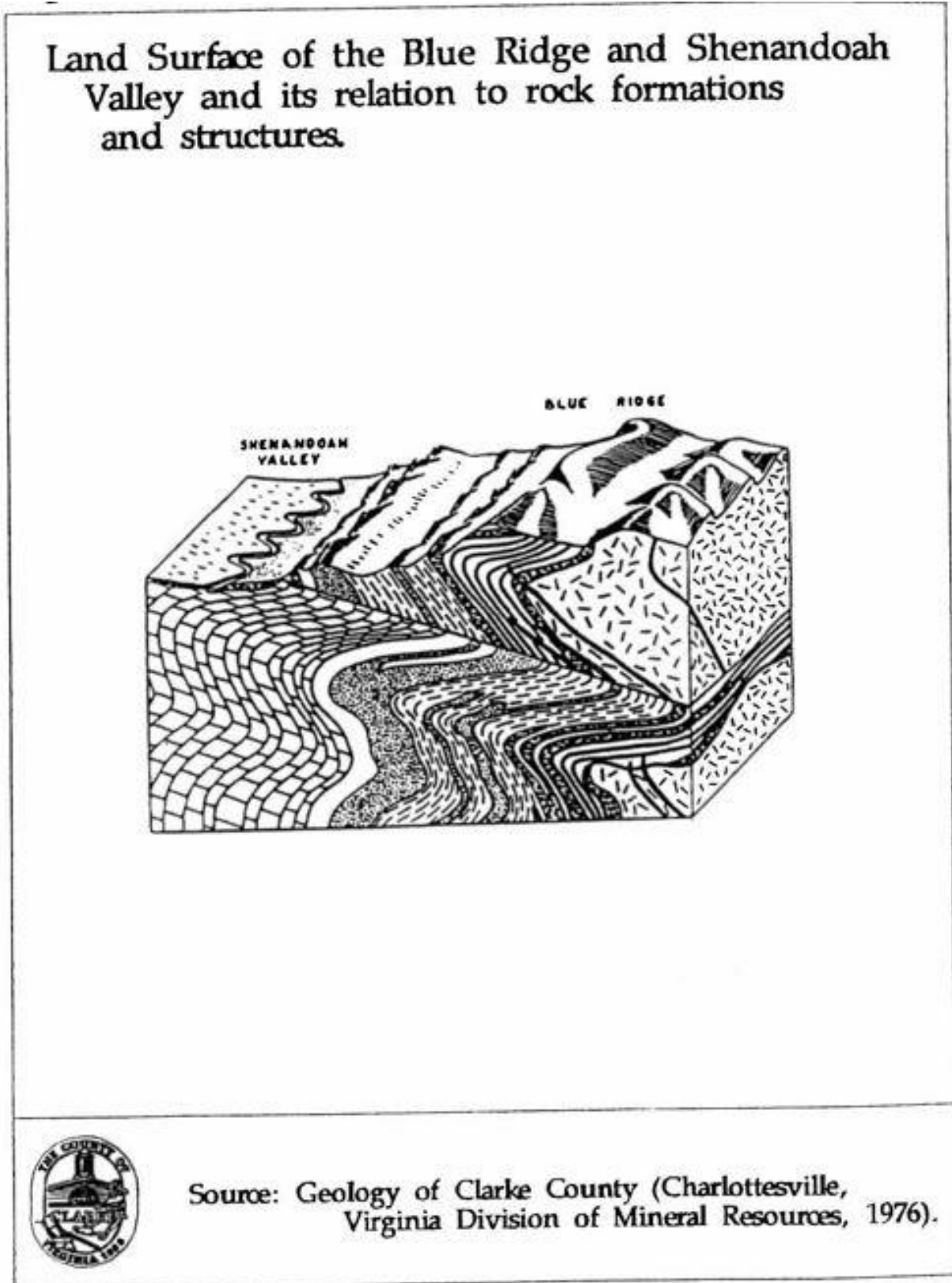
MAP 8 12 Geology of the Northern Shenandoah Valley

Geology of the Northern Shenandoah Valley



Source: Geology of Clarke County (Charlottesville, Virginia Division of Mineral Resources, 1976).

FIGURE 1—Blue Ridge and Shenandoah Valley Rock Formations and Structures



2. Major Geologic Events

Two major geologic events, occurring after the rocks of the Blue Ridge and the eastern and central lowlands were formed, shaped the topography of Clarke County. The first, called the Allegheny Orogeny, occurred during post-Ordovician times when lateral pressures from the southeast caused a tremendous movement of the Earth's crust. Besides uplifting the Appalachian Mountains, this episode resulted in extensive folding, faulting, and fracturing of the previously fairly flat layers of rock (Figure 1).

The second and more recent major geologic event is the carving of the landscape by erosion, a process that continues today. Water is considered to be the eroding agent, as there is no evidence indicating glaciers extended into this area. The magnitude of the erosion is striking: rocks representing thousands of feet of sediment have been removed by erosion during the past one million years.

3. Relief

Relief, the difference between the highest and lowest points on the landscape, varies according to the underlying geology. In Clarke County, the metamorphosed granitic and volcanic rocks of the Blue Ridge have been highly resistant to erosion, but softer sedimentary rocks of the valley have eroded considerably. Thus, the County's relief ranges from 1,935 feet above sea level on the Blue Ridge to 360 feet at the Shenandoah River. In the eastern and central lowland areas, the average elevation is about 600 feet.

4. Watercourses and Watersheds

The major watercourses of Clarke County are the Shenandoah River and the Opequon Creek. Both are within the larger Potomac River watershed. The Shenandoah flows generally at the juncture of the Blue Ridge and the carbonate rock area found on the east side of the Shenandoah Valley. The main stem Shenandoah River watershed encompasses 352 square miles, from the confluence of the north and south forks at Front Royal to the confluence with the Potomac River at Harper's Ferry; 40% of this watershed is in Clarke County. The Shenandoah watershed covers 142 square miles (or 80%) of Clarke County. Similarly, the Opequon runs on the edge of the shale area located in the central area of the Valley, where it meets the carbonate rocks. The Opequon Creek originates in Frederick County, Virginia, and extends approximately 54 miles to its confluence with the Potomac River. It has a watershed of 344 square miles, with 10% of this watershed in Clarke County. The Opequon watershed covers 35 square miles (or 20%) of Clarke County.

Flooding of the Shenandoah River prompted the County, in 1960, to establish regulations governing land use within the 100-year floodplain and 10-year floodway. The Zoning Ordinance defines a 100-year flood as a flood that, on the average, is likely to occur once every 100 years (i.e., that has a one (1) percent chance of occurring each year, although the flood may occur in any year). A floodway is defined as the channel of a river, stream, or other watercourse and the adjacent land area required to carry and discharge a flood that, on the average, is likely to occur once every 10 years (i.e., that has a ten percent chance of occurring each year). These regulations restrict building, structure, and drainfield location in floodplains.

5. Soil Types

Climate, plants, and animals act upon parent rock material to turn it into soil. Clarke County has three major soil areas: upland soils of the Blue Ridge, river terrace and floodplain soils of the Shenandoah Valley, and the upland soils of the Shenandoah Valley. Within these areas, there are 11 major soil groups, which are combinations of the various soil series. They are shown by number on Map 4 and discussed below. Percentages are given for the amount of area covered by each type.

a. Upland Soils of the Shenandoah Valley

The uplands in the Shenandoah Valley encompass most of Clarke County, including nearly all of the major population centers and most of the better farmland. Most of the soils were formed from sedimentary rocks.

Soil groups 2, 3, and 4 all have numerous rock outcrops and sinkholes. Low available water capacity, shallow rooting depth, and outcrops of limestone bedrock limit the use of machinery for farming. Limitations for residential and community development include outcrops of limestone bedrock and numerous sinkholes and solution channels in the bedrock that may result in contamination of wells and springs by surface runoff and seepage from septic fields.

Soil groups 5 and 6 have numerous rock outcrops and sinkholes but are well suited to farming, mainly row crops, pasture, and apple orchards. Limitations for residential and community development include clayey subsoils with high shrink-swell potential and low strength. Permeability is moderately slow and should be considered when septic tank absorption fields are designed. Sinkholes and bedrock channels make the groundwater very vulnerable to pollution.

1. *Berk-Endcav-Weikert (3%) is about 70% gently sloping to rolling and about 30% hilly to steep soils. These are shallow to deep, well-drained soils that have a loamy or clayey subsoil formed from materials weathered from shale or calcareous shale. The area is used mainly for pasture but includes some row crops (70%) and woodlands (30%). The soil has many limitations for farming, very low available water capacity, limited rooting depth, high acidity, low natural fertility, and coarse fragments on the surface. It also has many limitations for residential and community development.*
2. *Carbo-Opequon-Oaklet (9%) is about 35% nearly level and 65% gently sloping soils. These are shallow to deep, well-drained soils that have a clayey subsoil formed from materials weathered from limestone. This area is 85% cleared and used for pasture and row crops; 15% is wooded and generally too rocky for pasture.*
3. *Rock Outcrop-Opequon-Swimley (6%) is about 60% nearly level and 40% gently sloping soils. Areas of rock-outcrop that are characterized by shallow and deep, well-drained soils formed from materials weathered from limestone. The area is about 75% cleared for crops or pasture and 25% wooded.*
4. *Rock Outcrop-Hagerstown-Swimley (14%) is about 20% nearly level and 80% gently sloping soils. Characterized by areas of rock outcrop and deep well-drained soils that have a clayey subsoil formed from materials weathered from limestone. The area is about*

65% cleared and 35% wooded.

5. *Poplimento-Timberville (20%) is about 70% gently sloping and 30% rolling soils. These are deep, well drained soils formed from materials from interbedded limestone, shale, and colluvium. The area underlain by these soils is well suited to crops, orchards, and pasture.*
6. *Poplimento-Webbtown-Timberville (19%) is about 40% gently sloping, 45% rolling, and 15% hilly soils. These are deep and moderately well-drained soils formed from materials from interbedded limestone, shale, and colluvium. These soils are well suited for crops, orchards, and pasture. There are limitations for development based on moderate shrink-swell potential, high clay content, and the presence of sinkholes.*

b. River Terrace and Floodplain Soils of the Shenandoah Valley

These areas are mostly along the Shenandoah River and include some of the better farmland (in terms of soils) in the County. The soils here, groups 7 and 8, were formed from alluvium deposited by the Shenandoah River or from residuum weathered from adjacent uplands.

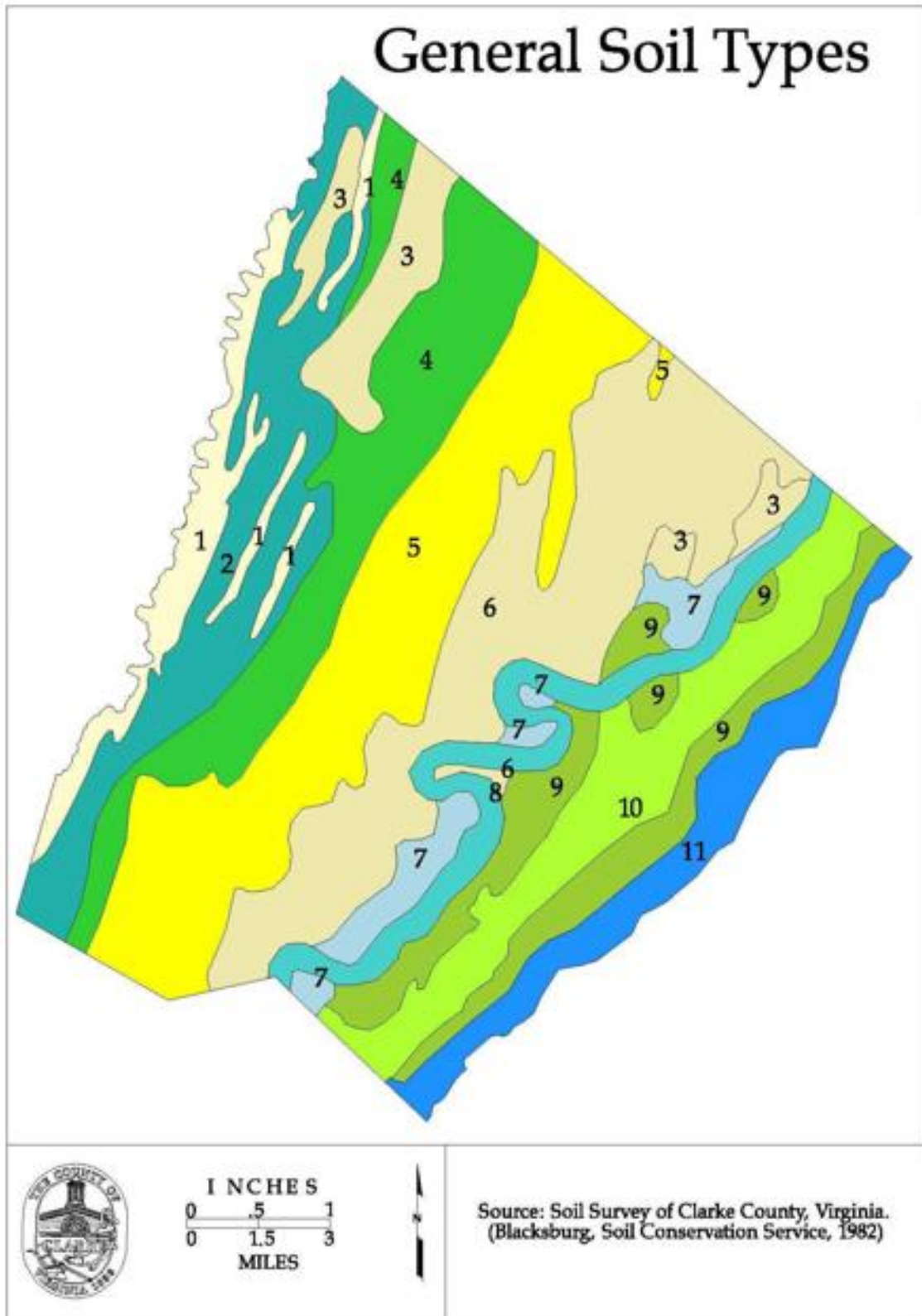
7. *Monongahela-Braddock-Webbtown (4%) is about 50% gently sloping, 30% rolling, 10% hilly, and 10% steep soils. Many areas have gravel and cobblestones on the surface. The area is used mostly for woodland but has some areas well suited for farming. About half the gently sloping and rolling soils are cleared and now used for cultivated crops or pasture. The area has many limitations for residential and community development.*
8. *Chagrín-Udipsamments-Lobdell (2%) is nearly level land that is occasionally flooded and therefore severely limited for residential and community development. The area is well suited for farming. Most is cleared and used for cultivated crops or pasture.*

c. Upland Soils of the Blue Ridge Mountains

The Blue Ridge is the roughest and steepest part of the County. It is mostly woodland and contains soil groups 9, 10, 11, formed from sedimentary and metamorphic rocks. These soils have limited potential for agriculture and residential development because of slope.

9. *Dekalb-Laidig (10%) is about 10% gently sloping, 30% sloping, 30% hilly, and 30% steep soils. These are moderately deep or deep, well-drained soils formed from materials weathered from sandstone. There is a west, northwest, or north aspect to half of the area. The area is mainly forested, due to steep slopes and rocky substrate.*
10. *Cardiff-Cataska-Whiteford (5%) is about 15% gently sloping, 40% sloping, 35% hilly, and 10% steep soils. Soils are deep to shallow, well-drained and formed from materials weathered from phyllites and slates. There is a west, northwest, or north aspect to half of the area.*
11. *Catoctin-Myersville-Lew (8%) is about 25% sloping, 45% moderately steep, and 30% steep and very steep soils. Stones and boulders limit agricultural and residential development.*

MAP 9 13 General Soil Types



6. Groundwater

Groundwater may be considered to be any water in the ground, but generally it refers to the water below the level at which the pore spaces in soil or rock materials are fully filled or saturated with water. In most settings, groundwater moves slowly through the small pores and cracks among soil and rock particles. In humid areas, perched water tables occur above the true water table in early spring. Although some wells may obtain water from these temporary water tables, most wells are supplied from deeper, more permanent water sources or aquifers.

Groundwater protection problems are generally greater in areas that are underlain by carbonate rocks, such as limestone and gypsum, than in areas underlain by most other rock types because of the presence of solution-enlarged sinkholes, conduits, and caves. These geologic features characterize what is called karst terrane. The generally high permeability of these rocks facilitates the infiltration and transport of contaminants from the land surface to the groundwater reservoir.

Groundwater aquifers in the eastern United States are continuously replenished or recharged by precipitation. Recharge rate affects groundwater quality and quantity. Only a fraction of all precipitation, however, reaches the deep aquifers used for drinking water, because most of it runs off and flows into streams, is absorbed by plants, or evaporates.

In the steep western slopes of the Blue Ridge, aquifer recharge is slight because water quickly runs down the steep slopes before it can soak into the soil. The ancient lava and granitic rock also has few pores for seepage but does have fractures that allow some water to reach deep aquifers. Although the water quality is generally good, the quantity of water from wells on the Blue Ridge is generally low, even at great depths.

Aquifer recharge is much more rapid in the eastern lowland carbonate area, which encompasses three-quarters of the County. This carbonate area is described as karst topography. The limestone and ~~dolomite rock~~ *dolostone* is highly fractured, allowing water to move quickly through to the aquifer. Moreover, carbonate rocks are usually water soluble, and fractures are eroded to form larger channels. Sinkholes and sinking streams indicate the rapid recharge ability of this area. In areas characterized by karst, pollution of groundwater is more likely because the open channels allow ground-level pollutants quick and easy access to the aquifer.

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